Access DB# 153518

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner # : 76107 Date: 5/13/2005
Art Unit: 1774 Phone Number ~~30~~ 2-1523 Serial Number: 10/786,811
Mail Box and Bldg/Room Location: Remsen 10C79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Electroluminescent Devices Including Conjugated Polymers Containing An Azole Structure
Inventors (please provide full names):
SHIYING ZHENG, KATHLEEN VAETH

Earliest Priority Filing Date: 2/25/2004

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search the polymer containing formula (I) as described in claim 1.
If this is too broad to search, please search formulas (II) and (III) set forth in claim 3. (did subset searches for each of these)

thank you

SCIENTIFIC REFERENCE BR
Sci & Tech Inf . Cntr
MAY 16 RECD
Pat. & T.M. Office

(TRIED TO PRINT OUT CLOSER ART TOWARD BEGINNING.)

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STAFF USE ONLY		Type of Search		Vendors and cost where applicable	
Searcher:	EL	NA Sequence (#)		STN	
Searcher Phone #:		AA Sequence (#)		Dialog	
Searcher Location:		Structure (#)		Questel/Orbit	
Date Searcher Picked Up:		Bibliographic		Dr.Link	
Date Completed:	5-19-05	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:		Fulltext		Sequence Systems	
Clerical Prep Time:		Patent Family		WWW/Internet	
Online Time:		Other		Other (specify)	

PTO-1590 (8-01)

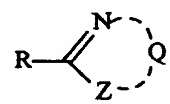
10/786,811

CLAIMS:

1. An electroluminescent device, comprising

a) a spaced-apart anode and cathode; and

b) an organic layer disposed between the spaced-apart anode and cathode and including a polymer having an azole structure represented by formula (I)



(I)

wherein:

Z is O, NR', or S;

Q represents atoms necessary to complete a hetero ring with N and Z;

R is a substituent and selected from hydrogen, or alkyl, or alkenyl, or alkynyl, or alkoxy wherein the alkyl, alkenyl, alkynyl or alkoxy can have from 1 to 40 carbon atoms; or aryl from 6 to 60 carbon atoms; or heteroaryl from 4 to 60 carbons; or F, or Cl, or Br; or a cyano group; or a nitro group; or atoms coupled to N or Z to complete a fused aromatic or heteroaromatic ring; and

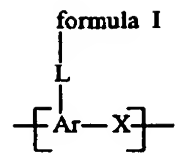
R' is hydrogen, or alkyl, or alkenyl, or alkynyl of from 1 to 40 carbon atoms wherein the alkyl, alkenyl, alkynyl or alkoxy can have from 1 to 40 carbon atoms; aryl from 6 to 60 carbon atoms; or heteroaryl from 4 to 60 carbons; or F, or Cl, or Br.

2. The electroluminescent device of claim 1 wherein the organic layer is an emissive layer or an electron transport layer or both.

3. The electroluminescent device of claim 1 wherein the polymer having the azole structure is represented by repeating unit of formulas (II) or (III)

$$-\left[\text{formula I}-X\right]- \text{; or}$$

(II)



(III)

wherein:

X is a conjugated group of 2 to 60 carbon atoms;

Ar is an aryl group having 6 to 60 carbon atoms; or heteroaryl having 4 to 60 carbon atoms, and one or more N, S, or O atoms; and

L is a direct bond between Formula (I) and Ar or a carbon linking group having 1 to 40 carbon atoms or a non-carbon linking group having 0 to 40 carbon atoms.

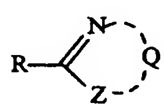
4. The electroluminescent device of claim 3 wherein X includes vinylenes, arylenes, heteroarylenes, arylene vinylenes, or heteroarylene vinylenes and combinations thereof.

5. The electroluminescent device of claim 3 wherein L includes an alkyl, alkenyl, alkynyl, aryl, or heteroaryl group.

6. A method of making an electroluminescent device, comprising

a) providing a spaced-apart anode and cathode; and

b) depositing an organic layer between the spaced-apart anode and cathode and including a polymer having an azole structure represented formula (I)



(I)

wherein:

Z is O, NR', or S;

Q represents atoms necessary to complete a hetero ring with N and Z;

R is a substituent and selected from hydrogen, or alkyl, or alkenyl, or alkynyl, or alkoxy wherein the alkyl, alkenyl, alkynyl or alkoxy can have from 1 to 40 carbon atoms; or aryl from 6 to 60 carbon atoms; or heteroaryl from 4 to 60 carbons; or F, or Cl, or Br; or a cyano group; or a nitro group; or atoms coupled to N or Z to complete a fused aromatic or heteroaromatic ring; and

R' is hydrogen, or alkyl, or alkenyl, or alkynyl of from 1 to 40 carbon atoms wherein the alkyl, alkenyl, alkynyl or alkoxy can have from 1 to 40 carbon atoms; aryl from 6 to 60 carbon atoms; or heteroaryl from 4 to 60 carbons; or F, or Cl, or Br.

7. The electroluminescent device of claim 6 wherein the organic layer is an emissive layer or an electron transport layer or both.

8. The electroluminescent device of claim 1 wherein the polymer is doped with one or more fluorescent dyes, phosphorescent dopants, or other light emitting material.

9. The electroluminscent device of claim 3 wherein L includes O, N, S, F, Cl, or Br, or Si atoms.

10. The electroluminescent device of claim 1 wherein R and Z, or R and Q are bound to each other to form a ring.

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=> display history full l1-

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L1                STR
                  E AZOLE/CN
L2              1 SEA AZOLE/CN
                  E AZOLE
L3            113 SEA AZOLE/BI
                  E C9H9N3O2
L4             12 SEA C9H9N3O2/BI
L5              1 SEA L3 AND L4
                  D RN
L6                STR 10605-21-7
L7                STR L1

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L8             50 SEA SSS SAM L7
L9                SCR 2043
L10            50 SEA SSS SAM L7 AND L9

     FILE 'HCAPLUS' ENTERED AT 16:58:58 ON 19 MAY 2005
L11         43557 SEA ZHENG ?/AU
L12           120 SEA VAETH ?/AU
L13             4 SEA L11 AND L12
L14          5671 SEA AZOLE#
L15             0 SEA L13 AND L14
L16          2819 SEA ZHENG S?/AU
L17            26 SEA VAETH K?/AU
L18             0 SEA L16 AND L14
L19             0 SEA L17 AND L14
L20             2 SEA L11 AND L14
L21             0 SEA L12 AND L14
                  SEL L13 1-4 RN

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L22           127 SEA (106-41-2/BI OR 18162-48-6/BI OR 18908-66-2/BI OR
L23            23 SEA L22 AND PMS/CI
L24         47170 SEA SSS FUL L7 AND L9
                  SAV TEM L24 GAR811/A
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L25          61256 SEA L24
L26          92405 SEA (ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR ORGANO
                   OR ORG#)(2A)LUM!N? OR LIGHT?(2A)(EMIT? OR EMISSION?) OR
                   EL OR E(W)L OR L(W)E(W)D OR OLED)/BI,AB OR LED/IT
L27            548 SEA L26 AND L25
L28         219773 SEA ANOD## OR (NEG# OR NEGATIV?)(2A)ELECTROD##
L29         233652 SEA CATHOD## OR (POS# OR POSITIV?)(2A)ELECTROD##
L30         223386 SEA SPACER? OR SPAC?(2A)(APART? OR SEP# OR SEPN# OR
                   SEPARAT?) OR GAP OR GAPS OR GAPPED OR GAPPING#
L31             23 SEA L27 AND L28 AND L29
L32              1 SEA L31 AND L30
L33             61 SEA L27 AND L30
L34          42007 SEA SPACER?
L35             15 SEA L27 AND L34
L36             16 SEA L33 AND (L28 OR L29 OR ELECTROD##)
L37           7334 SEA L28(5A)L29(5A)(SPACE# OR SPACING# OR SEPARAT? OR
                   SEP# OR SEPN# OR GAP OR GAPS OR GAPPED OR GAPPING#)
L38             10 SEA L25 AND L37
L39              0 SEA L38 AND L26
L40          28550 SEA (L28 OR L29 OR ELECTROD##)(3A)(SPACE# OR SPACING# OR
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L41              4 SEA L27 AND L40

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L42                STR L7

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L45                STR L44

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L48              1 SEA SUB=L24 SSS SAM L47
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L52          13752 SEA SUB=L24 SSS FUL L50
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L57             1 SEA L53 AND L29
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L59             0 SEA L58 AND (L28 OR L29 OR ELECTROD##)
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L61           383 SEA L60 AND L26
L62             0 SEA L61 AND L37
L63             3 SEA L61 AND L40
L64            27 SEA L61 AND L28
L65            41 SEA L61 AND L29
L66            53 SEA L61 AND L30
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L68            10 SEA L66 AND ELECTROD##
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L70             1 SEA L69 AND (L28 OR L29 OR ELECTROD##)
L71            12 SEA L32 OR L41 OR L54 OR L57 OR L63 OR L67 OR L70
L72            32 SEA (L35 OR L36 OR L38 OR L68 OR L69) NOT L71
L73            22 SEA L31 NOT (L71 OR L72)

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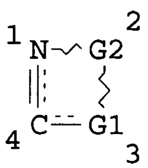


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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS    4

STEREO ATTRIBUTES: NONE
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L47               STR
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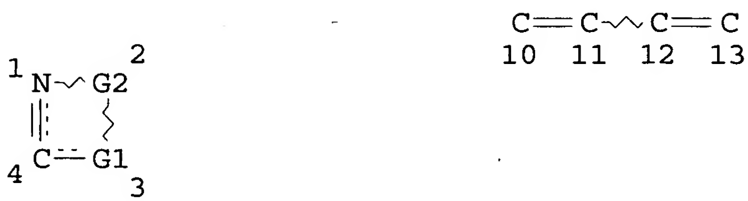

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GRAPH ATTRIBUTES:
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STEREO ATTRIBUTES: NONE
L49 30 SEA FILE=REGISTRY SUB=L24 SSS FUL L47

100.0% PROCESSED 2248 ITERATIONS 30 ANSWERS
SEARCH TIME: 00.00.01

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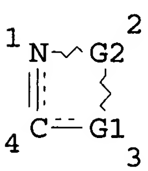
L7 STR



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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
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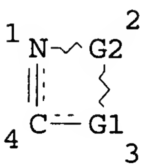
Cy 10

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC   2
NUMBER OF NODES IS   5

STEREO ATTRIBUTES: NONE
L52         13752 SEA FILE=REGISTRY SUB=L24 SSS FUL L50

100.0% PROCESSED  47170 ITERATIONS                          13752 ANSWERS
SEARCH TIME: 00.00.01



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=> d l71 1-12 cbib abs hitstr hitind

L71  ANSWER 1 OF 12  HCA  COPYRIGHT 2005 ACS on STN
142:249032  Negative-working photosensitive resin composition and
     negative-working photosensitive element.  Yamada, Naotake (Hitachi
     Chemical Co., Ltd., Japan).  Jpn. Kokai Tokkyo Koho JP 2005049806 A2
     20050224, 18 pp.  (Japanese).  CODEN: JKXXAF.  APPLICATION: JP
     2003-319758 20030911.  PRIORITY: JP 2003-275929 20030717.
AB   Disclosed is the neg.-working photosensitive resin compn. comprising
     (a) a (meth)acrylic alkali-sol. resin prepd. by copolymn. of
```

.gtoreq.1 maleimide monomers, (b) a reactive monomer, and (c) a photopolymn. initiator. The compn. i used for a **cathode separator** of an org. **electroluminescent** device.

IT **6143-80-2**, 2-(o-Chlorophenyl)-4,5-diphenylimidazole dimer
(photopolymn. initiator; neg.-working photosensitive resin compn.)

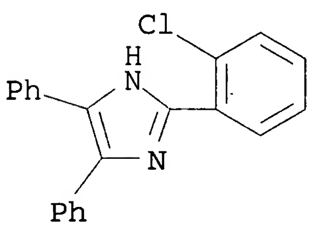
RN 6143-80-2 HCA

CN 1H-Imidazole, 2-(2-chlorophenyl)-4,5-diphenyl-, dimer (9CI) (CA INDEX NAME)

CM 1

CRN 1707-67-1

CMF C21 H15 Cl N2



IC ICM G03F007-033
ICS G03F007-004; G03F007-027; G03F007-40

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38

ST photosensitive resin compn **electroluminescence** display **cathode separator**

IT **Electroluminescent** devices
(displays; neg.-working photosensitive resin compn.)

IT Luminescent screens
(**electroluminescent**; neg.-working photosensitive resin compn.)

IT 90-94-8, N,N,N',N'-Tetramethyl-4,4'-diaminobenzophenone 583-39-1 **6143-80-2**, 2-(o-Chlorophenyl)-4,5-diphenylimidazole dimer
(photopolymn. initiator; neg.-working photosensitive resin compn.)

L71 ANSWER 2 OF 12 HCA COPYRIGHT 2005 ACS on STN

141:54721 Enhancement of efficiency in luminescent polymer by incorporation of conjugated 1,3,4-oxadiazole side chains as hole-blocker/electron-transporter. Kim, Joo Hyun; Lee, Hoosung (Department of Chemistry, Sogang University, Seoul, 121-742, S. Korea). Synthetic Metals, 143(1), 13-19 (English) 2004. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science B.V..

AB A novel luminescent polymer poly(2-methoxy-5-{6'-[2''-(4'''-oxyphenyl)-5''-phenyl-1'',3'',4''-oxadiazole]-hexyloxy}-1,4-phenylenevinylene-alt-2,5-bis-dodecyloxy-1,4-phenylenevinylene) (MPPOXA), was synthesized by the Wittig reaction. Electron withdrawing pendant, 2-(4-oxyphenyl)-5-phenyl-1,3,4-oxadiazole (OXD), is sepd. from the main chain via linear 1,6-hexamethylene-dioxy chain. The band **gap** figured out from the UV-Vis spectrum and photoluminescence (PL) max. of the polymer are 2.08 eV and 585 nm, resp. These values are similar to those of MEH-PPV [poly(2-methoxy-5-ethylhexyloxy-1,4-phenylenevinylene)] (2.12 eV and 580 nm). The max. of **electroluminescence** (**EL**) of the device based on single layer structure (ITO/MPPOXA/Al) appeared at 586 nm, which is similar to that of MEH-PPV (583 nm). In PL and **EL** spectra, emission from OXD pendants was not obsd. Single layer **EL** device based on MPPOXA have an external quantum efficiency of 0.01% at 2.3 mA/mm2, which is significantly higher than that of MEH-PPV (0.0002% at 2.4 mA/mm2) measured under the same conditions. The HOMO and LUMO energy levels of the polymer main chain figured out from the cyclic voltammogram and the UV-Vis spectrum are -4.96 and -2.88 eV, resp., which are similar to those of MEH-PPV (-4.98, -2.86 eV). The estd. HOMO and LUMO energy levels of the pendant were -6.17 and -2.47 eV, resp. LUMO energy level is significant lower than those of the main chain. These results suggest that OXD units do not affect the emission max. of the main chain comparison with MEH-PPV. The pendants block the injected holes from the **anode** and enhance electron-transporting property.

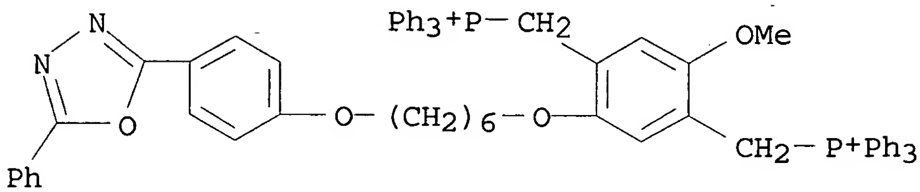
IT **708259-60-3P**
(prepn. of luminescent polyphenylenevinylene polymer by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)

RN 708259-60-3 HCA

CN Phosphonium, [[2-methoxy-5-[[6-[4-(5-phenyl-1,3,4-oxadiazol-2-yl)phenoxy]hexyl]oxy]-1,4-phenylene]bis(methylene)]bis[triphenyl-, dichloride, polymer with 2,5-bis(dodecyloxy)-1,4-benzenedicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

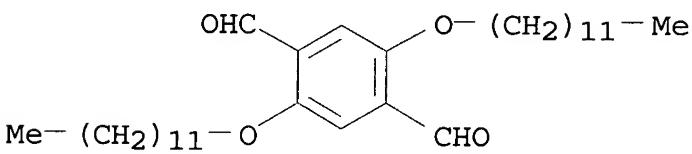
CRN 708259-59-0
CMF C65 H60 N2 O4 P2 . 2 Cl



●2 Cl⁻

CM 2

CRN 123415-45-2
CMF C32 H54 O4



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73, 76
ST oxadiazole polyphenylenevinylene luminescence **electroluminescence** conjugated polymer
IT HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Luminescence, **electroluminescence**
Polymerization
(prepn. of luminescent polyphenylenevinylene polymer by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)
IT **708259-60-3P** 708264-21-5P
(prepn. of luminescent polyphenylenevinylene polymer by incorporation of conjugated oxadiazole side chains as hole-blocker/electron-transporter)

L71 ANSWER 3 OF 12 HCA COPYRIGHT 2005 ACS on STN
140:324187 Conducting polymer devices for inter-converting light and electricity. Krebs, Frederik C.; Jorgensen, Mikkel; Almdal, Kristoffer (Riso National Laboratory, Den.). PCT Int. Appl. WO 2004030029 A2 20040408, 35 pp. DESIGNATED STATES: W: AE, AG, AL,

AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-EP10258 20030916. PRIORITY: GB 2002-22510 20020927.

AB A photovoltaic **electroluminescent** cell comprises a first electrode and a second **electrode sepd.** by dye linked block polymer mol. contg. an n-type semiconductor polymer block linked via a light absorbing monomeric dye moiety to a p-type semiconductor polymer block, the two polymer blocks being phase sepd. into distinct layers. The n-type semiconductor polymer block and the p-type semiconductor polymer block are each independently formed from selected polymers formed from terphenylenevinylene, polyaniline, polythiopene, poly(2-vinyl-pyridine), poly(N-vinylcarbazole), polyacetylene, poly(p-phenylenevinylene), polym. phenylene, poly(p-phenylene), poly(2,6-pyridine), or polypyrrole monomer, the polymers being substituted with electron withdrawing substituents in the case of the n-type polymer block and with electron donating substituents in the case of the p-type polymer block.

IT **678997-47-2P 678997-48-3P**
(charge transfer complex; conducting polymer devices for inter-converting light and electricity)

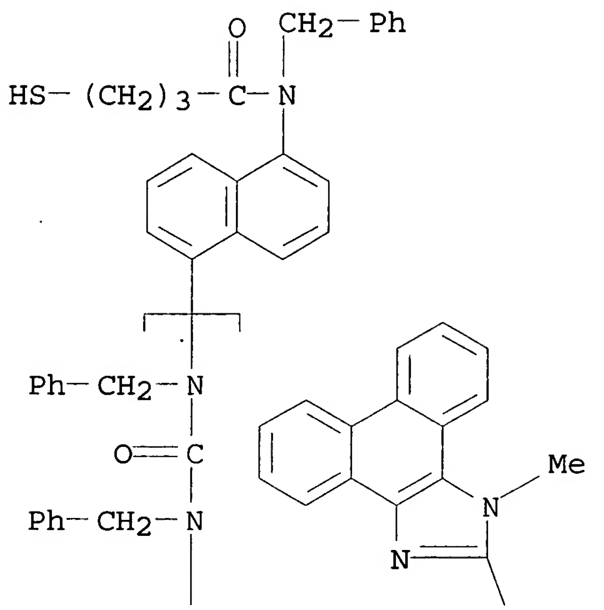
RN 678997-47-2 HCA

CN [1,1':4',1''-Terphenyl]-4-acetonitrile, 4''-[2-cyano-2-(4''-formyl-2',5'-dioctyl[1,1':4',1''-terphenyl]-4-yl)ethenyl]-2',5'-dioctyl-.alpha.-[[4-(2,5,7-trinitro-9-oxo-9H-fluoren-4-yl)phenyl]methylene]-, compd. with .alpha.-[5-[(4-mercapto-1-oxobutyl)(phenylmethyl)amino]-1-naphthalenyl]-.omega.-[[[[4-[[2,6-bis[3-(1-methyl-1H-phenanthro[9,10-d]imidazol-2-yl)phenyl]-4-pyridinyl]thio]phenyl](phenylmethyl)amino]carbonyl](phenylmethyl)amino]poly[[(phenylmethyl)imino]carbonyl[(phenylmethyl)imino]-1,5-naphthalenediyl] (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 678997-45-0
CMF (C25 H20 N2 O)n C91 H70 N8 O2 S2
CCI PMS

PAGE 1-A



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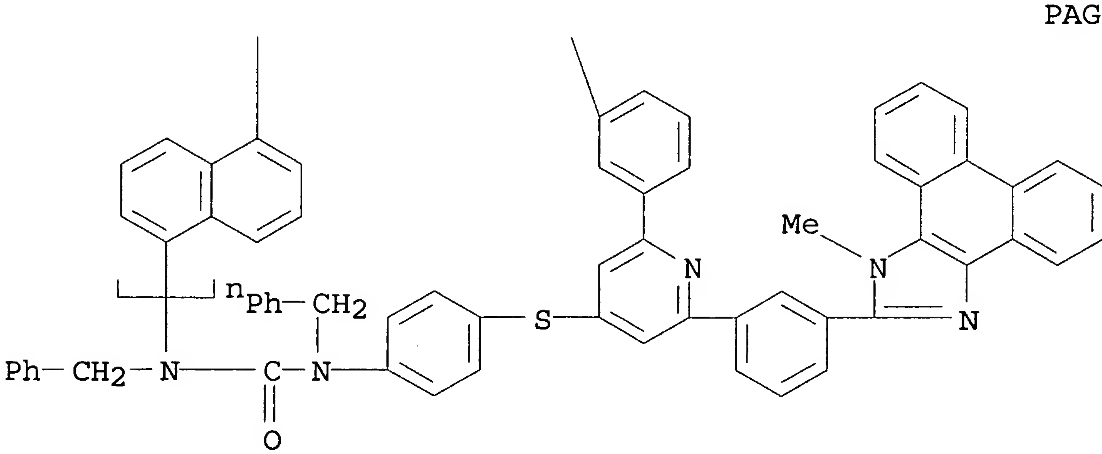

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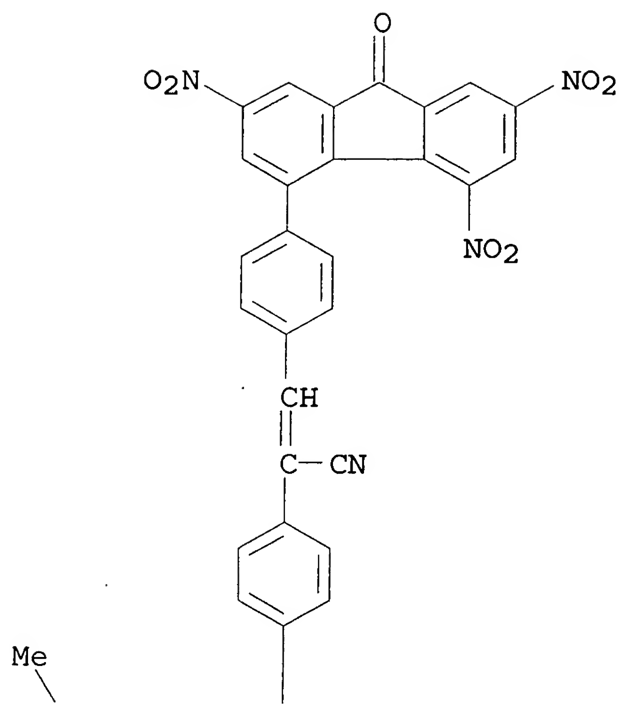
CRN 677725-76-7
CMF C94 H99 N5 O8

PAGE 1-A



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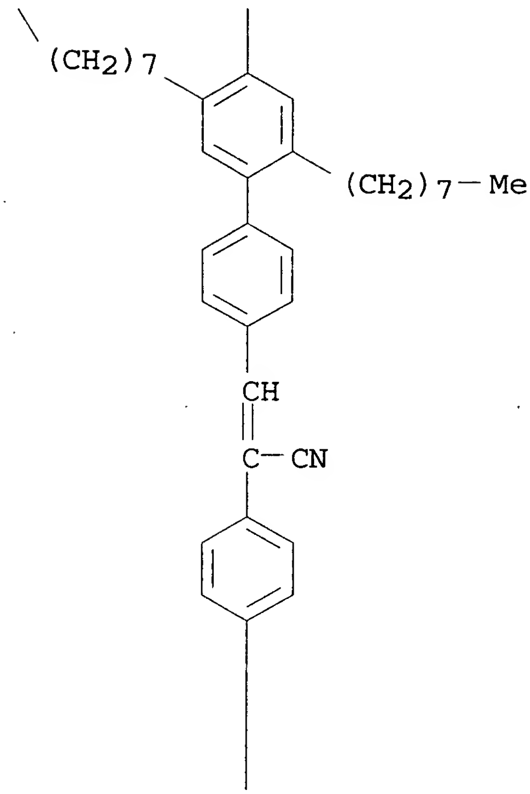
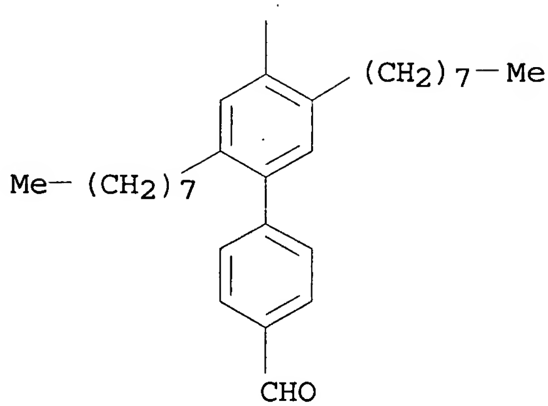


PAGE 3-A



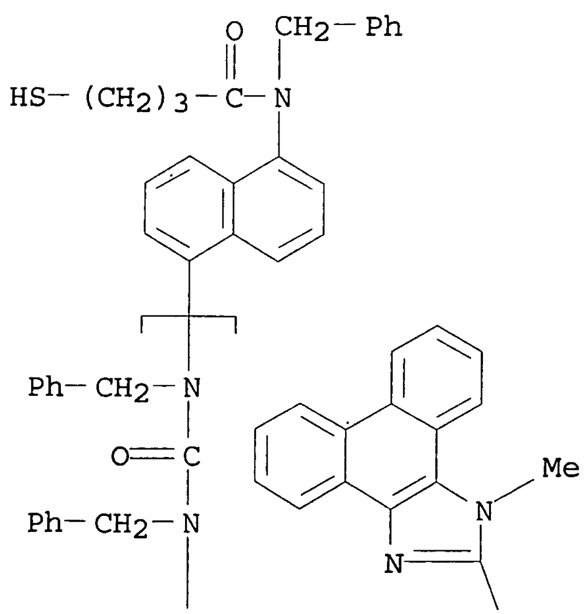
RN 678997-48-3 HCA
CN [1,1':4',1''-Terphenyl]-4-acetonitrile, 4''-[2-cyano-2-(4''-formyl-2',5'-dioctyl[1,1':4',1''-terphenyl]-4-yl)ethenyl]-.alpha.-[[4''-[1-

cyano-2-[4-(2,5,7-trinitro-9-oxo-9H-fluoren-4-yl)phenyl]ethenyl]-2',5'-dioctyl[1,1':4',1''-terphenyl]-4-yl]methylene]-2',5'-dioctyl-, compd. with .alpha.-[5-[(4-mercapto-1-oxobutyl)(phenylmethyl)amino]-1-naphthalenyl]-.omega.-[[[[4-[[2,6-bis[3-(1-methyl-1H-phenanthro[9,10-d]imidazol-2-yl)phenyl]-4-pyridinyl]thio]phenyl](phenylmethyl)amino]carbonyl](phenylmethyl)amino]poly[[(phenylmethyl)imino]carbonyl[(phenylmethyl)imino]-1,5-naphthalenediyl] (1:1) (9CI) (CA INDEX NAME)

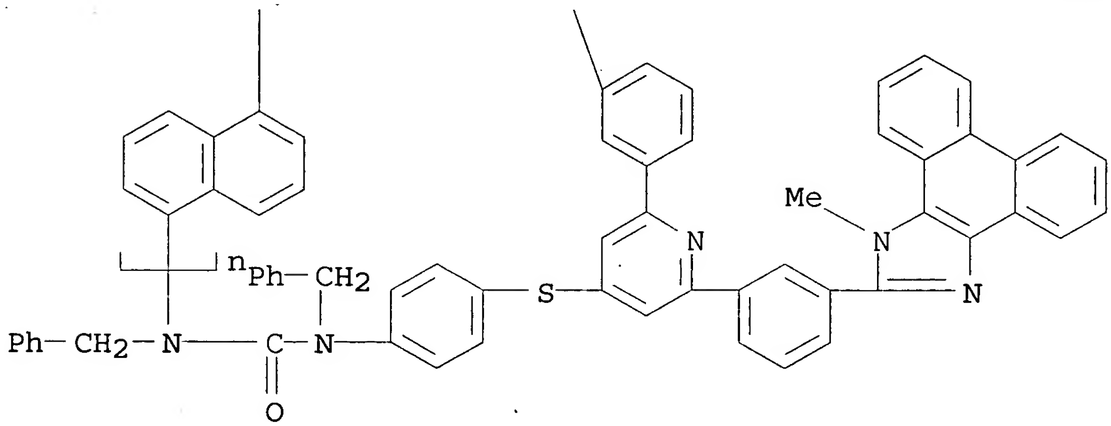
CM 1

CRN 678997-45-0
CMF (C25 H20 N2 O)n C91 H70 N8 O2 S2
CCI PMS

PAGE 1-A



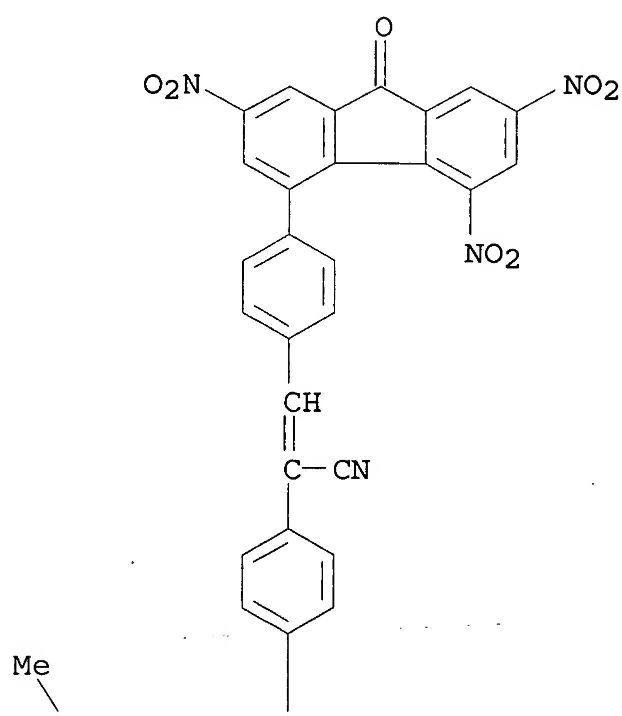
PAGE 2-A



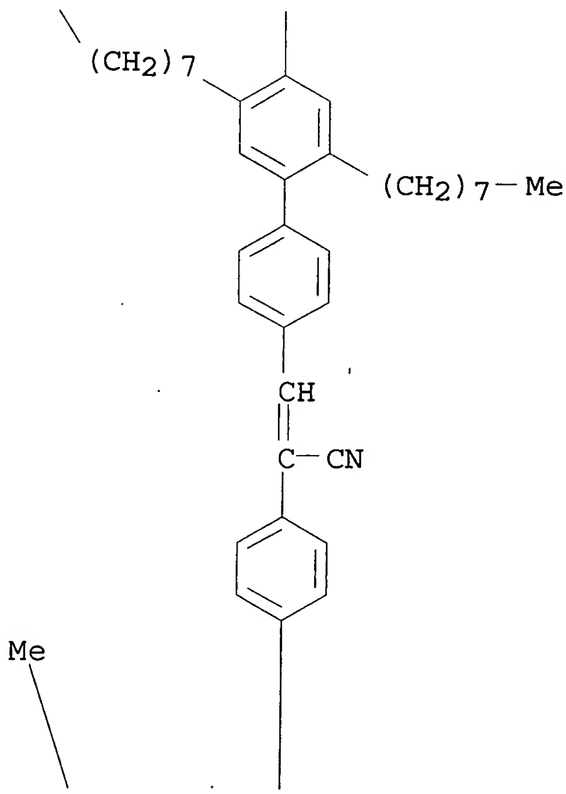
CM 2

CRN 677725-70-1
CMF C131 H144 N6 O8

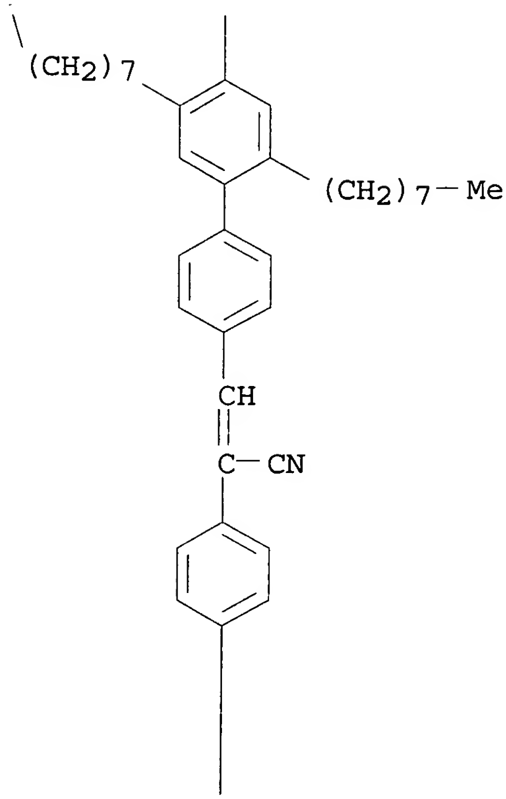
PAGE 1-A



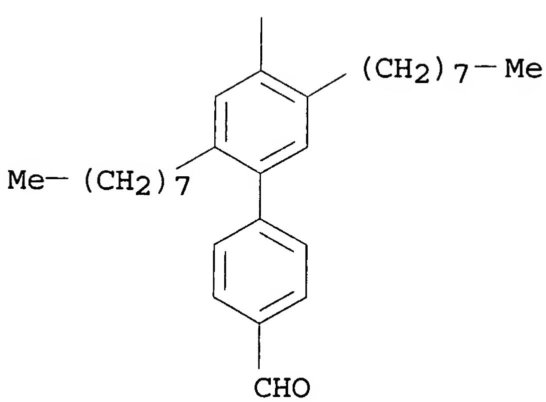
PAGE 2-A



PAGE 3-A



PAGE 4-A



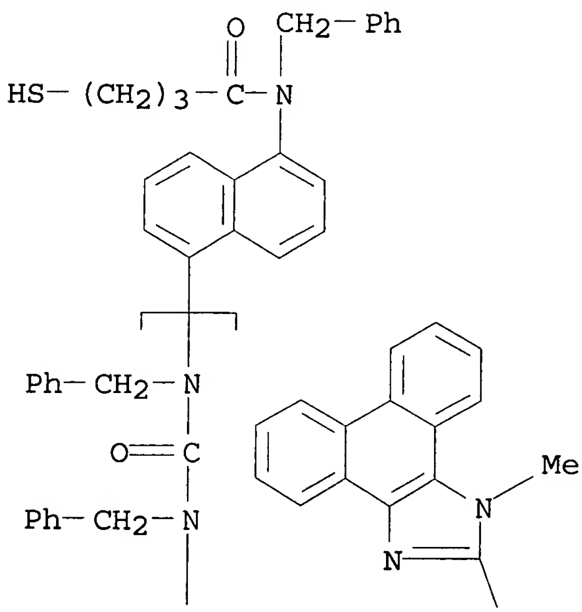
IT **678997-46-1**
(charge transfer complex; conducting polymer devices for inter-converting light and electricity)

RN 678997-46-1 HCA
CN [1,1':4',1''-Terphenyl]-4-acetonitrile, 4''-formyl-2',5'-dioctyl-.alpha.-[[4-(2,5,7-trinitro-9-oxo-9H-fluoren-4-yl)phenyl]methylene]-, compd. with .alpha.-[5-[(4-mercapto-1-oxobutyl)(phenylmethyl)amino]-1-naphthalenyl]-.omega.-[[[[4-[[2,6-bis[3-(1-methyl-1H-phenanthro[9,10-d]imidazol-2-yl)phenyl]-4-pyridinyl]thio]phenyl](phenylmethyl)amino]carbonyl](phenylmethyl)amino]poly[[(phenylmethyl)imino]carbonyl[(phenylmethyl)imino]-1,5-naphthalenediyl] (1:1) (9CI) (CA INDEX NAME)

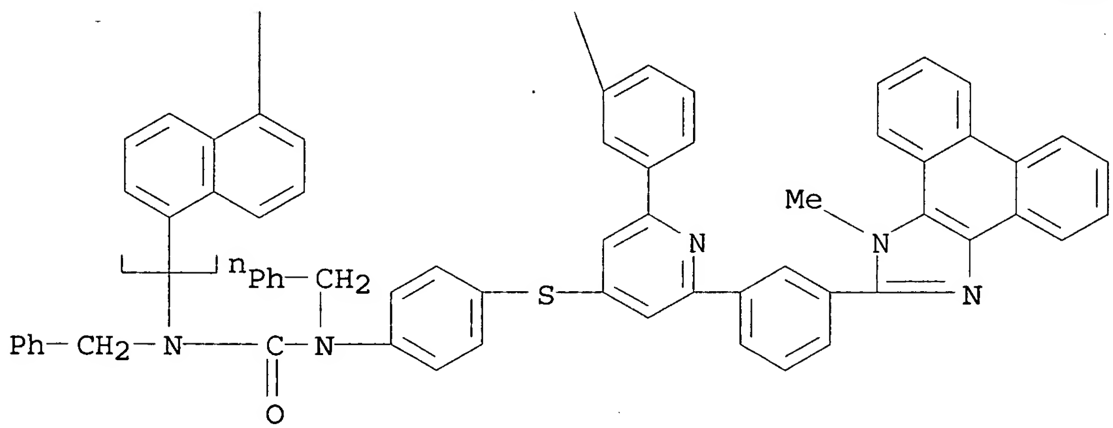
CM 1

CRN 678997-45-0
CMF $(C_{25} H_{20} N_2 O)_n$ $C_{91} H_{70} N_8 O_2 S_2$
CCI PMS

PAGE 1-A



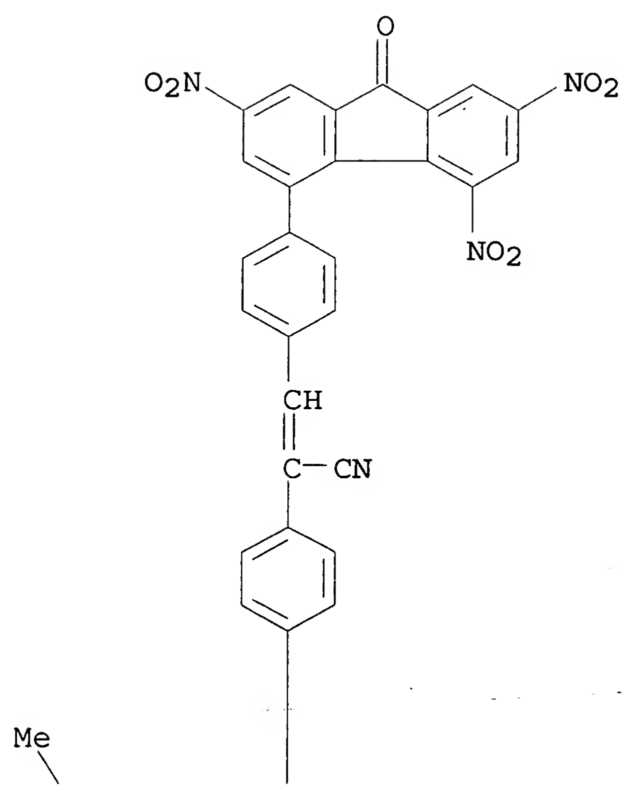
PAGE 2-A



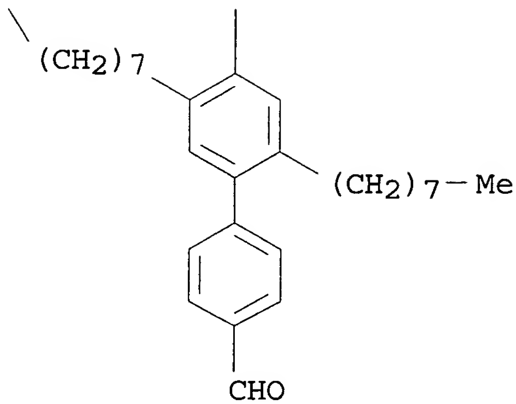
CM 2

CRN 677725-75-6
CMF C57 H54 N4 O8

PAGE 1-A

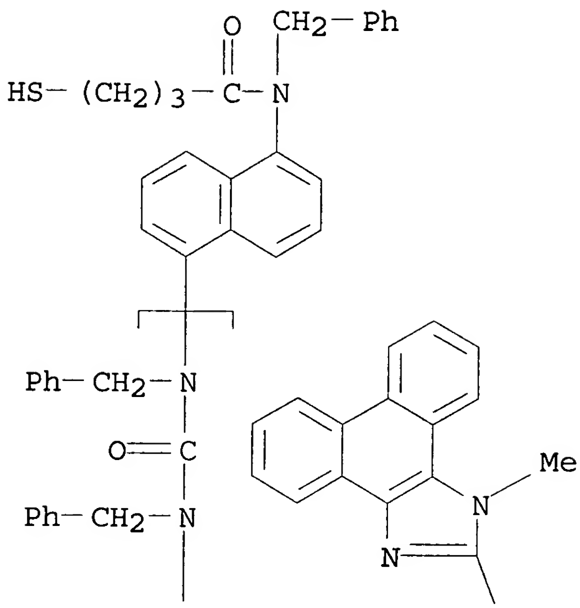


PAGE 2-A

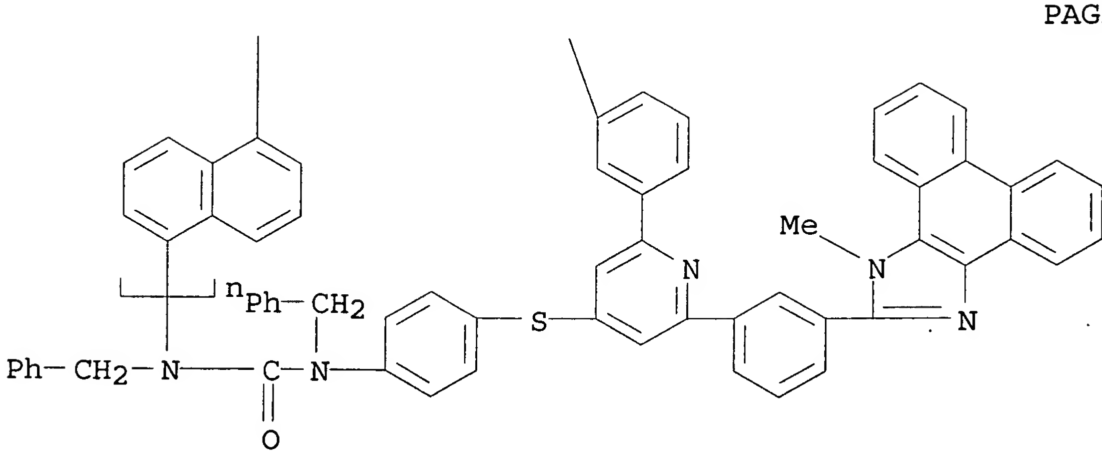


IT 678997-45-0P
(conducting polymer devices for inter-converting light and electricity)
RN 678997-45-0 HCA
CN Poly[[(phenylmethyl)imino]carbonyl[(phenylmethyl)imino]-1,5-naphthalenediyl], .alpha.-[5-[(4-mercapto-1-oxobutyl)(phenylmethyl)amino]-1-naphthalenyl]-.omega.-[[[[4-[[2,6-bis[3-(1-methyl-1H-phenanthro[9,10-d]imidazol-2-yl)phenyl]-4-pyridinyl]thio]phenyl](phenylmethyl)amino]carbonyl](phenylmethyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM H01L
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 74, 76

ST conducting polymer device interconversion light electricity; photovoltaic cell conducting polymer device; solar cell conducting polymer device; **electroluminescent** cell conducting polymer device

IT Conducting polymers
  Electroluminescent devices
 Energy converters
 Photoelectric devices
 Photoelectrochemical cells
 Solar cells
 Work function
  (conducting polymer devices for inter-converting light and electricity)

IT **678997-47-2P 678997-48-3P**
  (charge transfer complex; conducting polymer devices for inter-converting light and electricity)

IT **678997-46-1**
  (charge transfer complex; conducting polymer devices for inter-converting light and electricity)

IT 677725-70-1P 678997-19-8P 678997-44-9P **678997-45-0P**
  (conducting polymer devices for inter-converting light and electricity)

L71 ANSWER 4 OF 12 HCA COPYRIGHT 2005 ACS on STN

138:30773 Polybenzobisazoles Are Efficient Electron Transport Materials for Improving the Performance and Stability of Polymer **Light-Emitting** Diodes. Alam, Maksudul M.; Jenekhe, Samson A. (Departments of Chemical Engineering and of Chemistry, University of Washington, Seattle, WA, 98195-1750, USA). Chemistry of Materials, 14(11), 4775-4780 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

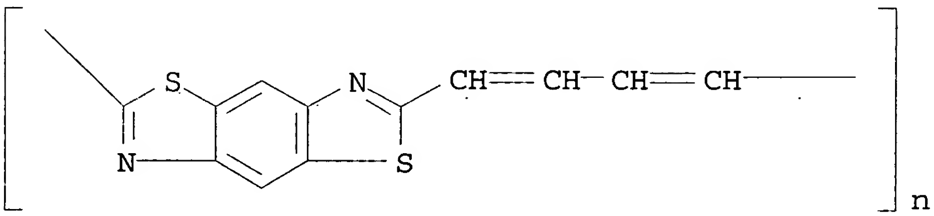
AB Seven polybenzobisazoles were studied as electron transport materials in arylene vinylene polymer-based **electroluminescent** devices. A large enhancement in performance and stability was obsd. in poly(p-phenylene vinylene) and poly(2-methoxy-5(2'-ethyl-hexyloxy)-1,4-phenylene vinylene) **light-emitting** diodes by using polybenzobisthiazoles and poly(p-phenylene benzobisoxazole) as electron-transport materials. Devices using polybenzobisazole electron transport layers and Al **cathodes** had a turn-on voltage .gtoreq.2.8 V, a luminance of up to 1400 cd/m2, and an external quantum efficiency of up to 2.5%. These polymer devices and their performances were stable under repeated testing over a period of 9-10 mo storage in air. The superior performance of the polybenzobisazole thin films as electron-transport and hole-blocking materials in polymer **light-emitting** diodes is due to their high glass-transition temp., environmental resistance, and photochem./electrochem. stability. Robust high-temp.

polybenzobisazoles can be used as efficient electron-transport and hole-blocking materials for improving the performance and stability of polymer **light-emitting** devices.

IT **143104-78-3**
(polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer **light-emitting** diodes)

RN 143104-78-3 HCA

CN Poly[benzo[1,2-d:4,5-d']bisthiazole-2,6-diyl-(1E,3E)-1,3-butadiene-1,4-diyl] (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 38

ST polybenzobisazole electron transport material stability polymer LED; polymer **light emitting** diode **electroluminescence**

IT Glass transition temperature
(of polymers; polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer **light-emitting** diodes)

IT Electric current-potential relationship
Glass substrates
Luminescence, **electroluminescence**
(polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer **light-emitting** diodes)

IT **Electroluminescent** devices
(polymer; polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer **light-emitting** diodes)

IT 7429-90-5, Aluminum, uses 50926-11-9, Indium tin oxide
(polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer **light-emitting** diodes)

IT 60871-72-9 69794-31-6 96638-49-2, Polyphenylene vinylene 126213-51-2, PEDOT 136733-40-9 138184-36-8, MEH-PPV 141727-99-3 **143104-78-3** 149273-94-9 161871-63-2
(polybenzobisazoles are efficient electron transport materials for improving the performance and stability of polymer

light-emitting diodes)

L71 ANSWER 5 OF 12 HCA COPYRIGHT 2005 ACS on STN
137:270720 Negative-working photosensitive resin composition and optical display devices using the same. Kobayashi, Satoshi (Clariant International Ltd., Switz.). PCT Int. Appl. WO 2002075455 A1 20020926, 19 pp. DESIGNATED STATES: W: CN, KR, SG, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP2416 20020314. PRIORITY: JP 2001-78065 20010319.

AB The invention relates to a neg. photosensitive resin compn. which comprises an alkali-sol. novolak resin having been subjected to a sepn. treatment so as to have an wt. av. mol. wt. in terms of polystyrene of 1,000-10,000 and to contain the part having a mol. wt. .ltoreq.500 in an amt. of .ltoreq.5 % relative to the total resin, a crosslinking agent and an agent generating an acid by a light. The neg. photosensitive resin compn. exhibits a wide process margin and is excellent in heat resistance, sensitivity, resoln. and a pattern shape, and thus can be suitably used as a LCD panel structural material, such as an etching resist, an ion implantation resist, a metal plating resist or a **spacer**, and an **electrode** partitioning material for an organo-**EL** display.

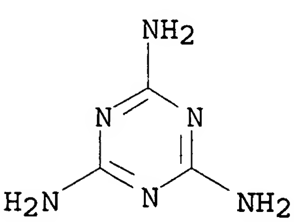
IT **9003-08-1**, Melamine resin
(neg. photosensitive resin compn. and display device using same)

RN 9003-08-1 HCA

CN 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 108-78-1
CMF C3 H6 N6



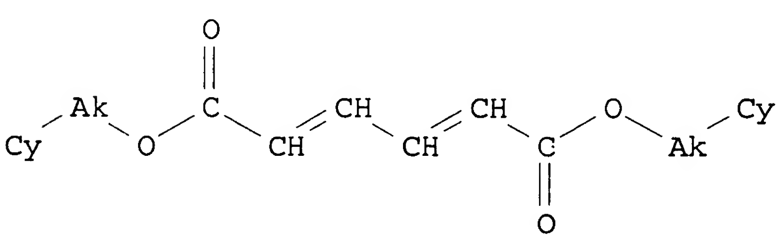
CM 2

CRN 50-00-0
CMF C H2 O

$H_2C{=}O$

IC ICM G03F007-038
 ICS H05B033-12
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **Electroluminescent** devices
 (displays; neg. photosensitive resin compn. and display device using same)
IT Luminescent screens
 (**electroluminescent**; neg. photosensitive resin compn. and display device using same)
IT **9003-08-1**, Melamine resin 69432-40-2, 2-(4-Methoxy-1-naphthyl)-4,6-bis(trichloromethyl)-1,3,5-triazine
 (neg. photosensitive resin compn. and display device using same)

L71 ANSWER 6 OF 12 HCA COPYRIGHT 2005 ACS on STN
137:239449 Luminescent material and luminescent component using novel compound and its polymer. Araki, Katsumi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002255934 A2 20020911, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-155912 20010524. PRIORITY: JP 2000-392898 20001225.
GI



I

AB The invention refers to a monomer I [Ak = alkylene; Cy = arom. ring contg. more than 6 atoms and at least one heteroatom], suitable for use as a luminescent material in **electroluminescent** devices, wherein the monomer undergoes topochem. polymn.
IT **457893-79-7P**
 (luminescent material and luminescent component using novel compd. and polymer)
RN 457893-79-7 HCA
CN 2,4-Hexadienedioic acid, bis[[4-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]phenyl]methyl] ester, (2Z,4Z)-, homopolymer

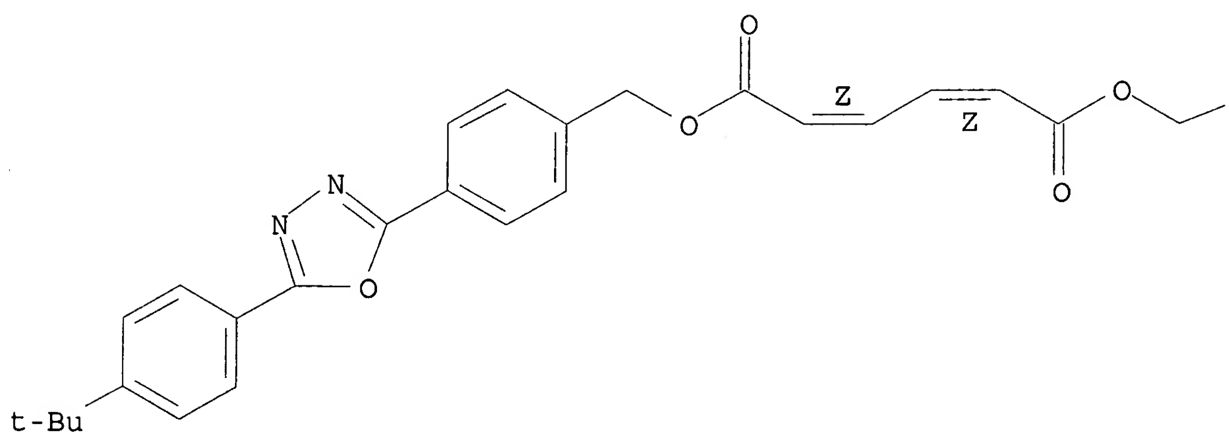
(9CI) (CA INDEX NAME)

CM 1

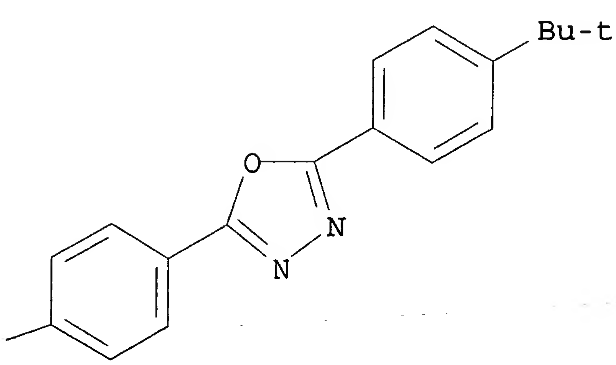
CRN 457893-78-6
CMF C44 H42 N4 O6

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



IC ICM C07D209-86
ICS C07D271-10; C07D471-04; C08F036-04; H05B033-14; H05B033-22
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST **electroluminescent** device luminescent material topochem polymn
IT **Electroluminescent** devices
Luminescent substances
Topochemical reaction
(luminescent material and luminescent component using novel compd. and polymer)
IT 65461-62-3P 457893-77-5P **457893-79-7P**
(luminescent material and luminescent component using novel compd. and polymer)

L71 ANSWER 7 OF 12 HCA COPYRIGHT 2005 ACS on STN
134:311512 Soluble **Electroluminescent** Poly(phenylene vinylene)s with Balanced Electron- and Hole Injections. Lee, Yuh-Zheng; Chen, Xiwen; Chen, Show-An; Wei, Pei-Kuen; Fann, Wun-Shain (Chemical Engineering Department, National Tsing-Hua University, Hsinchu, 30043, Taiwan). Journal of the American Chemical Society, 123(10), 2296-2307 (English) 2001. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.
AB Efficient sol. **electroluminescent** PPV-based copolymers bearing electron-deficient oxadiazole (OXD) moieties on side chains were designed and prepd. The OXD groups are incorporated through a long alkylene **spacer** to PPV backbone resulting in mol. dispersion of OXD in the film; both the side chain OXD and the main chain PPV retain their sep. electron-transport and emissive properties. The phenylene vinylene derivs. with asym. and branched substituents and a long **spacer** have suitable soly. that facilitates processing and fabrication; the amorphous structure is indicative of good miscibility of OXD groups with the main chains. By properly adjusting the OXD content through monomer compn., the chem. structure of the **electroluminescent** material can be tailored to provide balanced hole and electron injection to metal **cathodes**, such that the quantum efficiency is significantly improved and the turn-on voltage is lowered, in the case of assemblies with aluminum and calcium. A test device with calcium **cathodes** fabricated in open air, a max. brightness of 15000 cd/m2 at 15 V/100 nm and a max. luminance efficiency of 2.27 cd/A were obtained, resp., about 30 times brighter and 9.4 times more efficient than those of the homopolymer, poly[2-methoxy-5-(2'-ethylhexyloxy)-p-phenylenevinylene] (MEH-PPV). The use of phys. blends of homopolymers instead of copolymers did not provide significant improvements, due to phase sepn. that resulted in inefficient utilization of OXD. The prepn. route is suitable for

fabrication of single layer PLED [polymer **light emitting** diodes] with high brightness, high efficiency, and low turn-on voltage.

IT **335276-18-1P 335276-19-2P**

(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

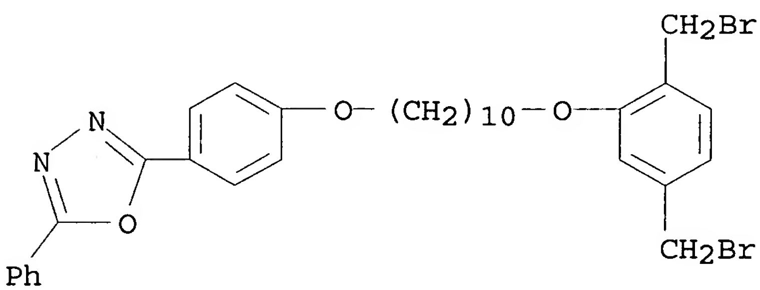
RN 335276-18-1 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[10-[2,5-bis(bromomethyl)phenoxy]decyl]oxy]phenyl]-5-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 335276-14-7

CMF C32 H36 Br2 N2 O3



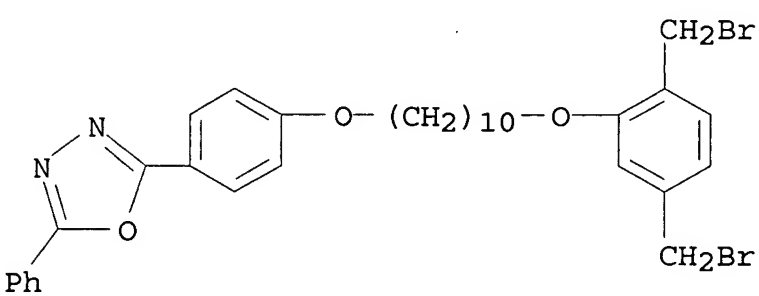
RN 335276-19-2 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[10-[2,5-bis(bromomethyl)phenoxy]decyl]oxy]phenyl]-5-phenyl-, polymer with 1,4-bis(bromomethyl)-2-[(2-ethylhexyl)oxy]-5-methoxybenzene (9CI) (CA INDEX NAME)

CM 1

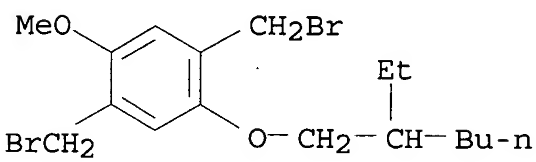
CRN 335276-14-7

CMF C32 H36 Br2 N2 O3



CM 2

CRN 209625-37-6
CMF C17 H26 Br2 O2



CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73, 76

ST oxadiazole polyphenylenevinylene soluble **electroluminescent** copolymer prepn; electron transport emissivity oxadiazole polyphenylenevinylene conjugated polymer; metal low work function **cathode** oxadiazole polyphenylenevinylene emitter; **light emitting** diode oxadiazole polyphenylenevinylene calcium **cathode**

IT **Electroluminescent** devices
(PLEDs; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Polymer morphology
(amorphous; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Polymer chains
(conformation; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Polymers, properties
(conjugated; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Redox reaction
(electrochem.; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Work function
(metal; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Electric current carriers
(photocarriers; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Band structure

Luminescence
Optical absorption
Phase separation
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Polymer blends
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT Poly(arylenealkenylenes)
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 10034-85-2, Hydriodic acid
(demethylation reagent; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 335276-16-9P, 1-Decyloxy-2,5-bis(bromomethyl)benzene
(intermediate and monomer; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 842-79-5P, 2-(p-Anisyl)-5-phenyl 1,3,4-oxadiazole 6781-59-5P, 1-(p-Anisoyl)-2-benzoyl hydrazide 23133-34-8P, p-(5-Phenyl-1,3,4-oxadiazol-2-yl) phenol 130402-65-2P, 1-(10'-Bromodecanoxy)-2,5-dimethylbenzene 335276-13-6P, 2-[10'-[p-(5''-Phenyl-1'',3'',4''-oxadiazole-2''-yl)phenoxy]decanoxy] 1,4-dimethylbenzene 335276-15-8P, 1-Decyloxy-2,5-dimethylbenzene
(intermediate; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 335276-14-7P, 2-[10'-[p-(5''-Phenyl-1'',3'',4''-oxadiazole-2''-yl)phenoxy]decanoxy] 1,4-bis(bromomethyl)benzene 335276-17-0P
(monomer; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 7440-70-2, Calcium, uses
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 209625-38-7P **335276-18-1P** **335276-19-2P** 335276-20-5P 335276-21-6P
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 95-87-4, 2,5-Dimethyl phenol 100-07-2, p-Anisoyl chloride

110-01-0, Tetrahydrothiophene 112-29-8, Decyl bromide 128-08-5, N-Bromosuccinimide 613-94-5, Benzoylhydrazine 4101-68-2, 1,10-Dibromodecane
(prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

IT 10025-87-3, Phosphoric trichloride
(reductive cyclization reagent; prepn. of sol. **electroluminescent** poly(oxadiazole-phenylene vinylene)s with balanced carrier injection for ease of fabrication of highly efficient PLEDs)

L71 ANSWER 8 OF 12 HCA COPYRIGHT 2005 ACS on STN

133:310226 Synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-containing polymer. Shin, Dong-Cheol; Ahn, Jun-Hwan; Kim, Yun-Hi; Kwon, Soon-Ki (Department of Polymer Science & Engineering and Research Institute of Industrial Technology, Gyengsang National University, Jinju, 660-701, S. Korea). Journal of Polymer Science, Part A: Polymer Chemistry, 38(17), 3086-3091 (English) 2000. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..

AB The new blue light polymer, poly(1',4'-phenylene-1",4"-[2"-(2""-ethylhexyloxy)]phenylene-1"',4"'-phenylene-2,5-oxadiazolyl) was synthesized through the Suzuki reaction of diboronic acid, 2-methoxy-[5-(2'-ethylhexyl)oxy]-1,4-benzene diboronic acid and dibromide, 2,5-bis(4'-bromophenyl)-1,3,4-oxadiazole. This polymer was characterized with various spectroscopic methods. The polymer solid PL spectrum has a max. peak at 444 nm corresponding to blue light. Blue LED has been fabricated using this polymer as the **electroluminescent** layer, ITO as the **anode**, and aluminum as **cathode.** This device **emitted** a blue **light**, with 40 V of turn-on voltage.

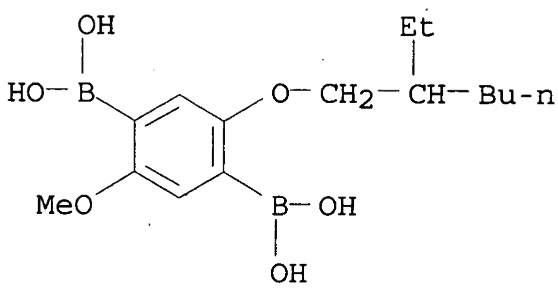
IT **224558-95-6DP**, phenyl-terminated
(synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

RN 224558-95-6 HCA

CN Boronic acid, [2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

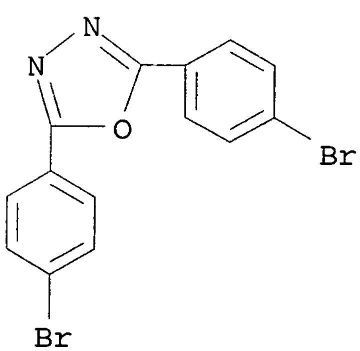
CM 1

CRN 224558-94-5
CMF C15 H26 B2 O6



CM 2

CRN 19542-05-3
CMF C14 H8 Br2 N2 O



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73, 76
ST bromophenyl oxadiazole polymn diboronic acid; oxadiazole contg polyphenylene synthesis blue **electroluminescence**; **light emitting** device oxadiazole contg polyphenylene
IT Polyoxadiazoles
(arom.; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)
IT **Electroluminescent** devices
(blue-emitting; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)
IT Band **gap**
Electron affinity
Ionization potential
Thermal stability
(synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)
IT 7429-90-5, Aluminum, uses 50926-11-9, ITO

(electrode; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

IT 121-43-7, Trimethyl borate 586-75-4, 4-Bromobenzoyl chloride 7803-57-8, Hydrazine monohydrate 224558-17-2
(monomer synthesis; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

IT 69673-99-0P
(monomer synthesis; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

IT 19542-05-3P 224558-94-5P
(monomer; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

IT 14221-01-3, Pd(PPh3)4
(polymn. catalyst; synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

IT **224558-95-6DP**, phenyl-terminated 301663-66-1P
(synthesis and **electroluminescent** properties of a novel 1,3,4-oxadiazole-contg. polymer)

L71 ANSWER 9 OF 12 HCA COPYRIGHT 2005 ACS on STN

131:229257 Spectroscopic and electrochemical study of a novel blue **electroluminescent** p-n diblock conjugated copolymer. Meng, Hong; Chen, Zhi-Kuan; Huang, Wei (Institute of Materials Research and Engineering (IMRE), National University of Singapore, Singapore, 119260, Singapore). Journal of Physical Chemistry B, 103(31), 6429-6433 (English) 1999. CODEN: JPCBFK. ISSN: 1089-5647. Publisher: American Chemical Society.

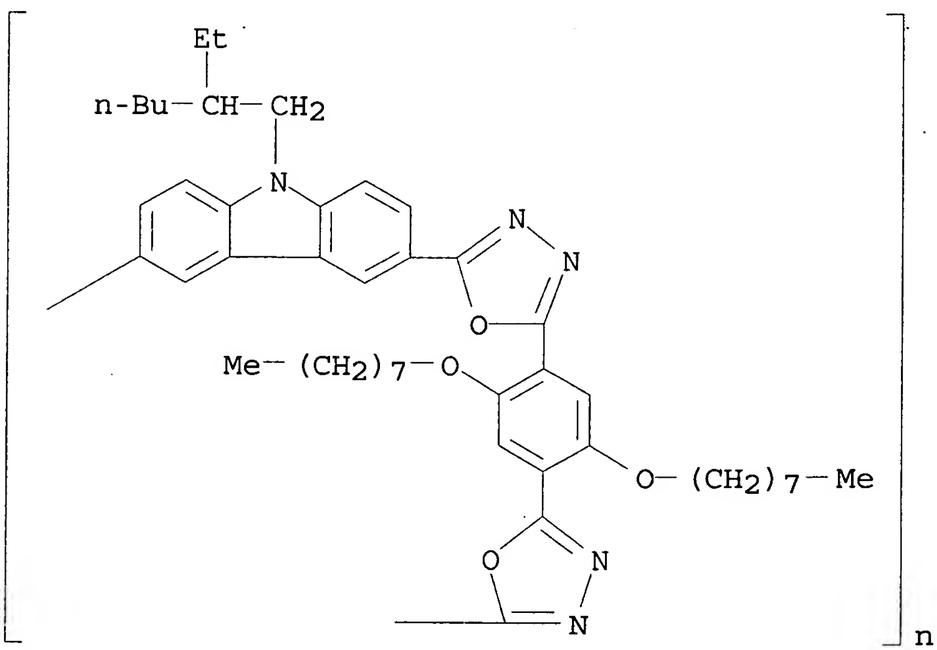
AB A novel p-n diblock copolymer, poly[N-(2'-ethylhexyl)-carbazole-3,6-diyl-1'',3'',4''-oxadiazole-2'',5''-diyl-2''',5'''-dioctyloxy-1''',4'''-phenylene-1'''',3'''',4''''-oxadiazole-2'''',5''''-diyl] (PCOPO) composed of an electron-rich moiety carbazole and an electron-deficient unit arom. oxadiazole was synthesized aiming at balancing the abilities of conducting holes and electrons. Electrochem. analyses by cyclic voltammetry indicate that PCOPO can be reversibly n-doped and irreversibly p-doped. The **cathodic** sweep reveals that the redn. involves two-electron process with respect to the successive redn. of oxadiazole rings and carbazole moieties in the polymer chain. The highest occupied MOs (HOMO) and lowest unoccupied MOs (LUMO) energy levels of the polymer are estd. to be 5.60 and 2.66 eV from the onset of oxidn. and redn. potentials, resp. The band **gap** energy of the polymer estd. by the electrochem. measurement (2.94 eV) is in good agreement with that from the optical method (2.82 eV). The photoluminescence (PL) of film samples shows that the polymer **emits** greenish-blue **light** (475 nm). The PL of solns. is concn.-dependent. In dil. solns., the PL emission is from the singlet exciton transition, whereas in the concd. solns., it is mainly originated from excimers. The excimer formation is related

to the incorporation of oxadiazole rings into the polymer backbone, which can enhance the interchain interactions. Both photophys. and electronic properties demonstrate that the polymer may be a promising candidate material for the fabrication of an efficient blue **light-emitting** device.

IT **244036-31-5P**
(spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

RN 244036-31-5 HCA

CN Poly[[9-(2-ethylhexyl)-9H-carbazole-3,6-diyl]-1,3,4-oxadiazole-2,5-diyl[2,5-bis(octyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl] (9CI) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35, 73, 76

ST luminescence soln exciton excimer conjugated carbazole contg polyoxadiazole; HOMO LUMO band **gap** redn potential carbazole contg polyoxadiazole

IT Excimer
(concd. soln. luminescence; spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

IT Exciton luminescence
(dild. solns.; spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

IT Doping
(n- and p-; spectroscopic and electrochem. study of novel blue

electroluminescent p-n conjugated copolymer)

IT Band **gap**
Conducting polymers
Cyclic voltammetry
FMO (molecular orbital)
IR spectra
Luminescence
Luminescence, **electroluminescence**
UV and visible spectra
(spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

IT Reduction
(two-electron, electrochem.; spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

IT 244036-30-4P
(pre-polymer; spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

IT 244036-29-1P **244036-31-5P**
(spectroscopic and electrochem. study of novel blue **electroluminescent** p-n conjugated copolymer)

L71 ANSWER 10 OF 12 HCA COPYRIGHT 2005 ACS on STN

131:80435 Developing technology: new polymers for single-layer LEDs. Peng, Zhonghua; Bao, Zhenan; Galvin, Mary E. (Univ. Missouri, Kansas City, MO, 64110-2499, USA). CHEMTECH, 29(5), 41-46 (English) 1999. CODEN: CHTEDD. ISSN: 0009-2703. Publisher: American Chemical Society.

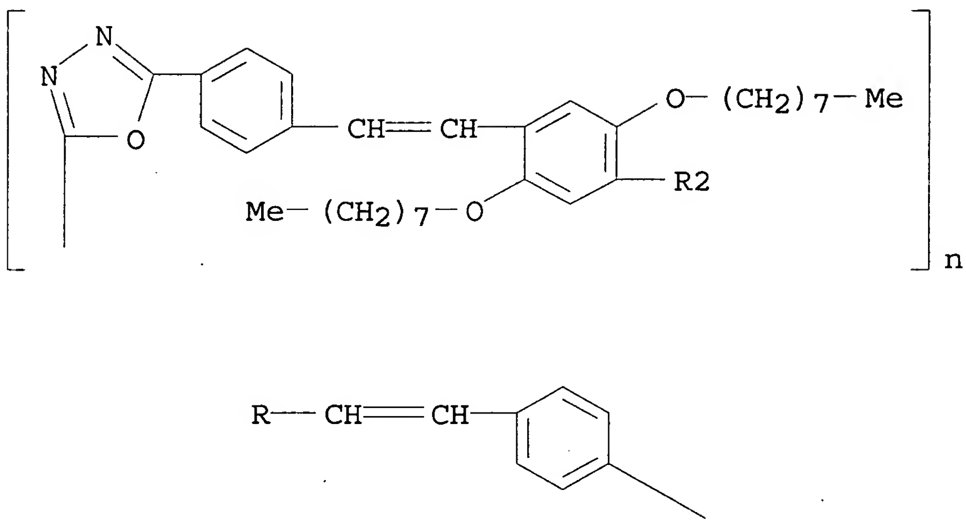
AB Incorporating oxadiazole units into poly(phenylene-vinylenes) improves their **electroluminescence** efficiency; in some cases there were >2 orders of magnitude increase in external quantum efficiency. Topics discussed include poly(phenylene-vinylenes) with side-chain- and main-chain-oxadiazoles and oxadiazoles as poly(phenylene-vinylene) main-chain substituents.

IT **228873-81-2 228873-82-3 228873-83-4**
(oxadiazole-contg. poly(phenylene-vinylene) polymers for single-layer LEDs with phys. properties)

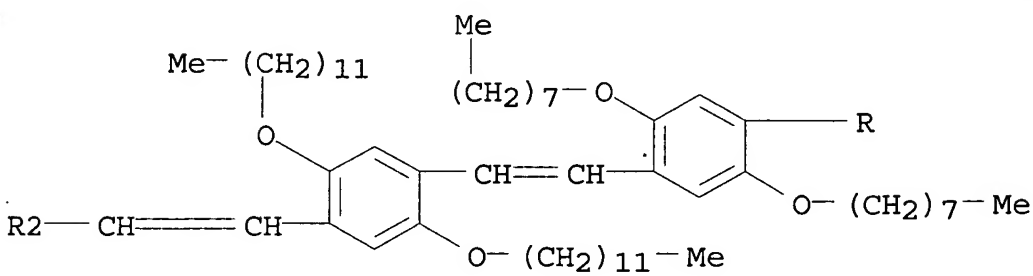
RN 228873-81-2 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

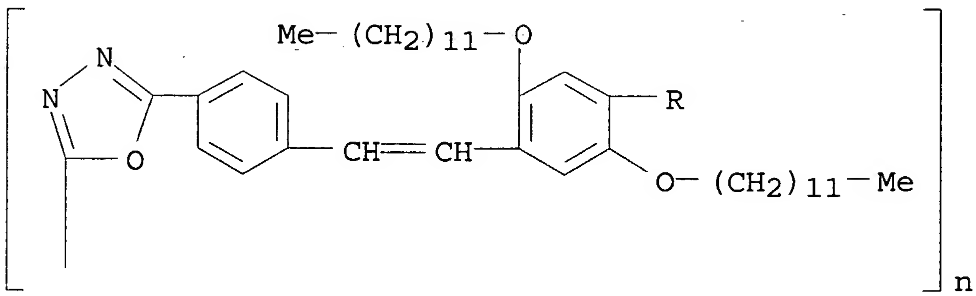
PAGE 1-A

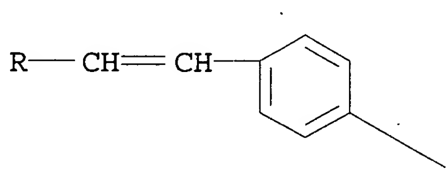


PAGE 2-A

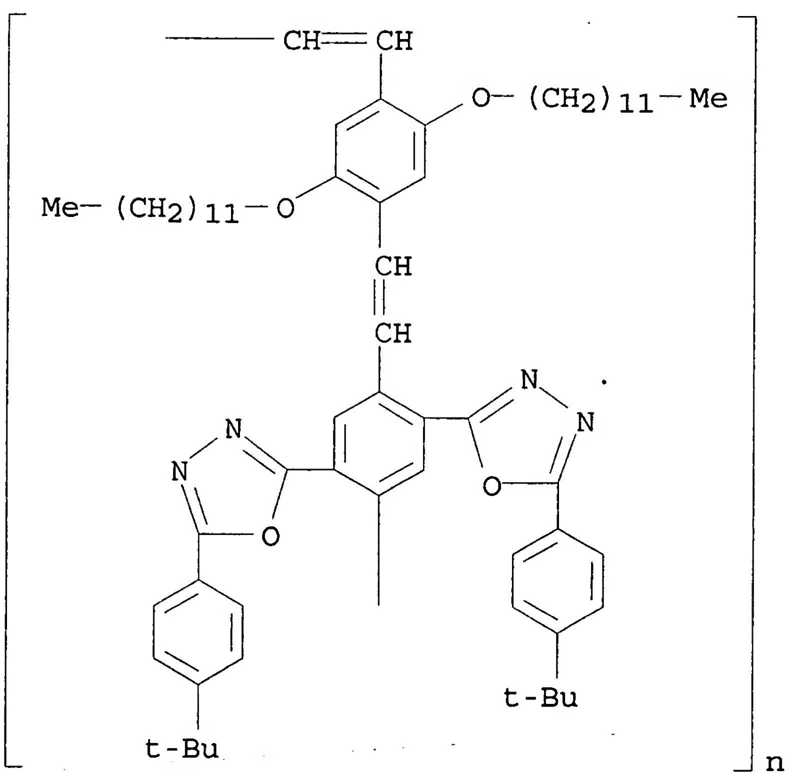


RN 228873-82-3 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)





RN 228873-83-4 HCA
CN Poly[[2,5-bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-1,4-phenylene]-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl] (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 35, 36, 72

ST oxadiazole phenylene vinylene polymer LED **electroluminescence**; fluorescence oxadiazole phenylene vinylene polymer LED; calcium **cathode** oxadiazole phenylene vinylene polymer LED; substituent effect oxadiazole phenylene vinylene polymer LED **electroluminescence**; cyclic voltammetry oxadiazole phenylene vinylene polymer LED **electroluminescence**; Fermi level oxadiazole phenylene vinylene polymer LED **electroluminescence**; redn potential oxadiazole phenylene vinylene polymer LED **electroluminescence**; band **gap** oxadiazole phenylene vinylene polymer LED **electroluminescence**

IT **Cathodes**
(calcium; oxadiazole-contg. poly(phenylene-vinylene) polymers for single-layer LEDs with phys. properties)

IT Band **gap**
Cyclic voltammetry
Electroluminescent devices
Fermi level
Fluorescence
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence, **electroluminescence**
Reduction potential
Substituent effects
(oxadiazole-contg. poly(phenylene-vinylene) polymers for single-layer LEDs with phys. properties)

IT 7440-70-2, Calcium, uses
(**cathodes**; oxadiazole-contg. poly(phenylene-vinylene) polymers for single-layer LEDs with phys. properties)

IT 92583-93-2 181875-34-3 228873-80-1 **228873-81-2** **228873-82-3** **228873-83-4**
(oxadiazole-contg. poly(phenylene-vinylene) polymers for single-layer LEDs with phys. properties)

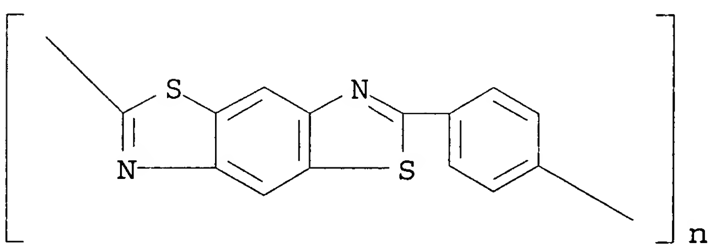
L71 ANSWER 11 OF 12 HCA COPYRIGHT 2005 ACS on STN
125:342437 Bipolar **electroluminescent** device. Epstein, Arthur J.; Wang, Yunzhang; Gebler, Darren Douglas (Ohio State University, USA). PCT Int. Appl. WO 9629747 A1 19960926, 50 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1996-US3357 19960312. PRIORITY: US 1995-406512 19950317.

AB **Light-emitting** bipolar devices are described which comprise a **light emitter** formed from an **electroluminescent** org. **light-emitting** material in contact with an insulating material. The **light emitter** is in contact with two **electrodes** that are **spaced** apart from each other. The **light emitter** can be formed as an integral mixt. of **light-emitting** materials and insulating materials or as sep. layers of **light-emitting** and insulating materials. The devices operated with a.c. voltage of less than twenty-four volts and in some instances at less than five volts. Under a.c. driving, the devices produce modulated light output that can be frequency or amplitude modulated. Under d.c. driving, the devices operate in both forward and reverse bias.

IT **69794-31-6D**, derivs.
(bipolar org. **electroluminescent** devices)

RN 69794-31-6 HCA

CN Poly(benzo[1,2-d:4,5-d']bisthiazole-2,6-diyl-1,4-phenylene) (9CI) (CA INDEX NAME)



IC ICM H01L035-24
ICS H01L051-00; H01L033-00; H05B033-14; H05B033-26

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST org bipolar **electroluminescent** device

IT **Electroluminescent** devices
(bipolar org. **electroluminescent** devices)

IT Poly(arylenealkenylenes)
(bipolar org. **electroluminescent** devices)

IT Electric insulators and Dielectrics
(org; bipolar org. **electroluminescent** devices)

IT Phosphors
(**electroluminescent**, org; bipolar org. **electroluminescent** devices)

IT Poly(arylenealkenylenes)
(polyphenylenevinylenes, bipolar org. **electroluminescent** devices)

IT Polymers

(polythiophenes, bipolar org. **electroluminescent** devices)

IT 110-86-1D, Pyridine, derivs., polymers 7429-90-5, Aluminum, uses 9011-14-7, Polymethyl methacrylate 15082-28-7 25013-01-8 25067-59-8D, Polyvinylcarbazole, derivs. 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl) 32131-17-2, Nylon 6/6, uses 50926-11-9, Indium tin oxide **69794-31-6D**, derivs. 95270-88-5D, Polyfluorene, derivs. 160039-18-9D, Polycyanoterephthalylidene, derivs.

(bipolar org. **electroluminescent** devices)

IT 25233-30-1, Polyaniline

(emeraldine base; bipolar org. **electroluminescent** devices)

L71 ANSWER 12 OF 12 HCA COPYRIGHT 2005 ACS on STN

124:31099 Conjugated polymer exciplexes and applications thereof. Jenekhe, Samson A.; Osaheni, John A. (Research Corp. Technologies, Inc., USA). PCT Int. Appl. WO 9512628 A1 19950511, 188 pp. DESIGNATED STATES: W: JP; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1994-US12322 19941028. PRIORITY: US 1993-146266 19931102; US 1994-187278 19940126.

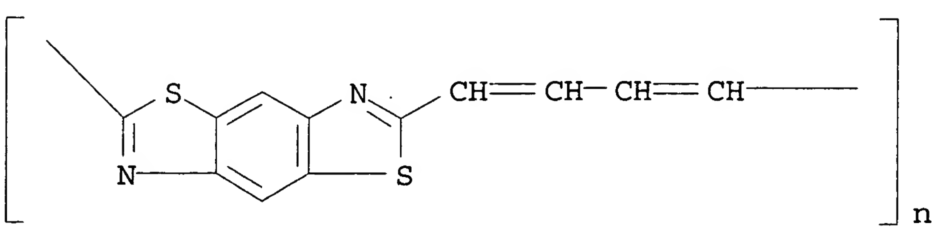
AB Exciplexes with good luminescence, photogeneration of charge carriers, and quantum efficiency are formed from a .pi.-conjugated polymers such as poly(p-phenylenebenzobisoxazole) (I) and an electron donor or acceptor component. Also claimed are assemblies comprising these exciplexes, their use in optoelec. devices and a method of enhancing optoelec. properties of .pi.-conjugated polymers by forming these exciplexes . A typical I-tris(p-tolyl)amine (II) exciplex was prepd. by spin-coating a MeNO2 soln. of I and AlCl3 onto glass and fused silica substrates and overcoating with a CH2Cl2 soln. contg. a 40:60 II-bisphenol A polycarbonate mixt.

IT **143104-78-3P 160566-01-8P 160566-06-3P**

(conjugated polymer exciplexes for optoelec. devices)

RN 143104-78-3 HCA

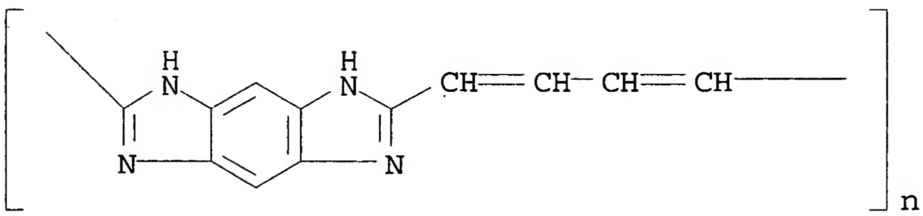
CN Poly[benzo[1,2-d:4,5-d']bisthiazole-2,6-diyl-(1E,3E)-1,3-butadiene-1,4-diyl] (9CI) (CA INDEX NAME)



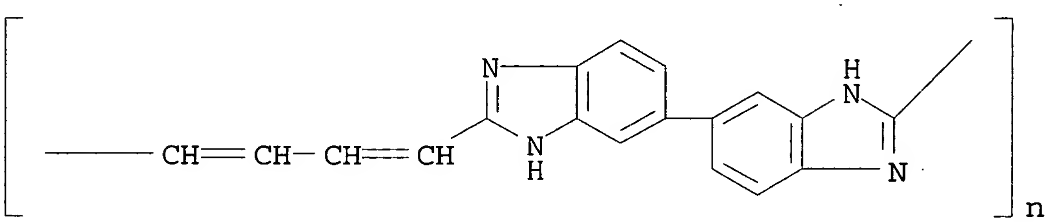
RN 160566-01-8 HCA

CN Poly[(1,5-dihydrobenzo[1,2-d:4,5-d']diimidazole-2,6-diyl)-1,3-

butadiene-1,4-diyl], (E,E)- (9CI) (CA INDEX NAME)



RN 160566-06-3 HCA
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,3-butadiene-1,4-diyl), (E,E)- (9CI) (CA INDEX NAME)



IC ICM C08G061-00
ICS C09K011-06; C08G075-32
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 74
IT **Electroluminescent** devices
Electron acceptors
Electron donors
Electrophotography
Exciplexes
Lasers
Optical detectors
Photoconductors
Photoelectric devices, solar
(conjugated polymer exciplexes for optoelec. devices)
IT 32075-68-6P 63391-00-4P 68089-33-8P 69794-31-6P 77739-70-9P
101661-86-3P 135614-64-1P 135663-13-7P 135695-37-3P
137059-47-3P 137059-50-8P 137059-51-9P 137059-52-0P
137059-55-3P 137091-73-7P 137091-74-8P 137091-77-1P
137145-33-6P 137145-34-7P 137145-35-8P 137175-34-9P
141727-98-2P 143104-75-0P 143104-77-2P **143104-78-3P**
146248-15-9P 146248-16-0P 146248-17-1P 146248-18-2P
146248-19-3P 146248-20-6P 146248-21-7P 146248-22-8P
147320-04-5P 147320-08-9P 147320-10-3P 149273-94-9P
149274-18-0P 152328-01-3P 152328-02-4P 152328-03-5P
153643-23-3P 153643-25-5P 160565-97-9P 160565-98-0P
160565-99-1P 160566-00-7P **160566-01-8P** 160566-05-2P

160566-06-3P 161871-63-2P 161926-39-2P 162431-42-7P
162431-43-8P 162431-44-9P 162431-45-0P 162431-47-2P
162431-48-3P 162431-50-7P 170484-01-2P 170484-02-3P
170484-03-4P 170484-04-5P 170484-05-6P 170484-06-7P
170484-07-8P 170484-08-9P 170484-09-0P 170484-11-4P
(conjugated polymer exciplexes for optoelec. devices)

=> d l72 1-32 cbib abs hitstr hitind

L72 ANSWER 1 OF 32 HCA COPYRIGHT 2005 ACS on STN
142:198442 Poly(p-phenylenevinylene) Derivatives Containing Electron-Transporting Aromatic Triazole or Oxadiazole Segments. Chen, Shinn-Horng; Chen, Yun (Department of Chemical Engineering, National Cheng Kung University, Tainan, Taiwan). Macromolecules, 38(1), 53-60 (English) 2005. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB We report the synthesis, optical and electrochem. details, and properties of copolymers P1-P3 consisting of alternate hole-transporting 1,4-bis(hexyloxy)-2,5-distyrylbenzene (HDB) and electron-transporting 4-(4-(hexyloxy)phenyl)-3,5-diphenyl-4H-1,2,4-triazole (EDT) or 2,5-diphenyl-1,3,4-oxadiazole (EDO) segments linked via an ether **spacer** or a twisted .sigma.-bond (biphenyl). These copolymers are sol. in common org. solvents such as chloroform, NMP, and 1,1,2,2-tetrachloroethane and exhibit good thermal stability with decompn. temps. higher than 375 .degree.C. P1-P3 show efficient energy transfer from EDT or EDO to EDO fluorophores when photoexcited. Optical and electrochem. properties of P1-P3 are also investigated in detail by comparing with P4 and P5 contg. similar chromophores. From the cyclic voltammograms the onset oxidn. and redn. potentials for isolated P1 and conjugated P2 are comparable, indicating that the effect of the twisted .sigma.-bond in P2 is similar to that of the ether **spacer** in P1. The optimized geometries of P2 and P3 show that the torsion angle between HDB and EDT or EDO are 83.6.degree. or 89.6.degree., resp., based on MNDO semiempirical calcns. The large torsion angle in P2 and P3 significantly limits delocalization of charges between hole- and electron-transporting segments. Accordingly, in P2 and P3 the oxidn. and redn. starts at the hole- and the electron-transporting, resp., like those in isolated P1. The HOMO and LUMO energy levels of P1, P2, and P3, estd. from electrochem. data, are -5.16, -5.12, and -5.19 eV and -3.35, -3.38, and -3.23 eV, resp. Single-layer **light-emitting** diodes (Al/P1-P3/ITO) have been successfully fabricated, and they reveal blue or yellow **electroluminescence.**

IT **581107-32-6 581107-33-7**
(synthesis, optical, and electrochem. properties of poly(arylenealkenylens) contg. electron-transporting arom.

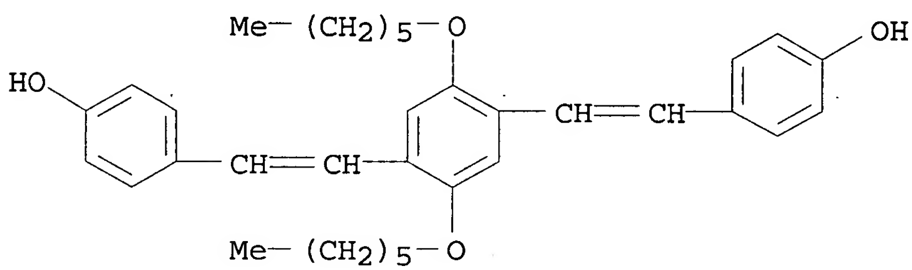
triazole or oxadiazole segments)

RN 581107-32-6 HCA

CN Phenol, 4,4'-[[2,5-bis(hexyloxy)-1,4-phenylene]di-2,1-ethenediyl]bis-, polymer with 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

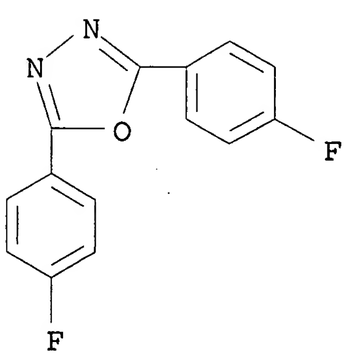
CM 1

CRN 182500-36-3
CMF C34 H42 O4



CM 2

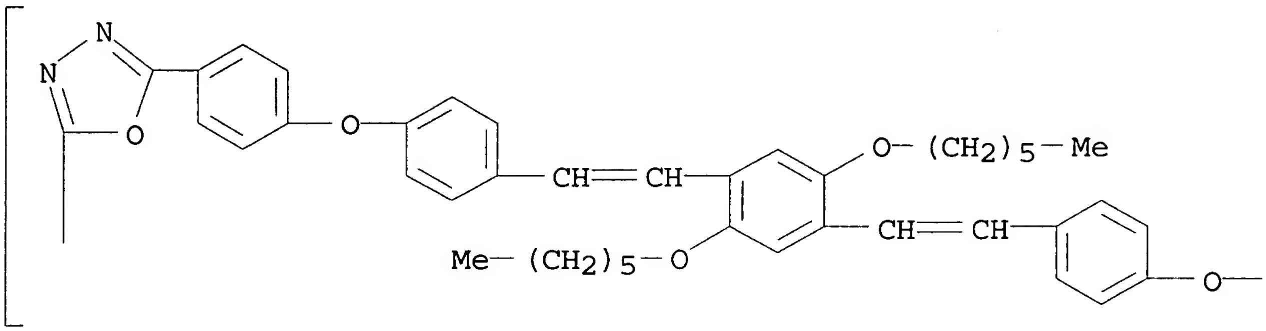
CRN 324-81-2
CMF C14 H8 F2 N2 O



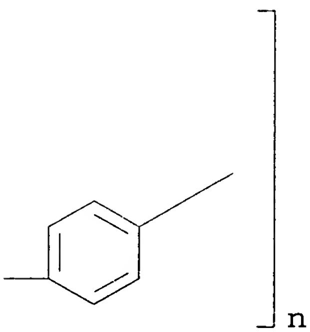
RN 581107-33-7 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT **837429-78-4P 837429-79-5P 837429-80-8P**
837429-81-9P 837429-82-0P 837429-83-1P
(synthesis, optical, and electrochem. properties of poly(arylenealkenylens) contg. electron-transporting arom. triazole or oxadiazole segments)

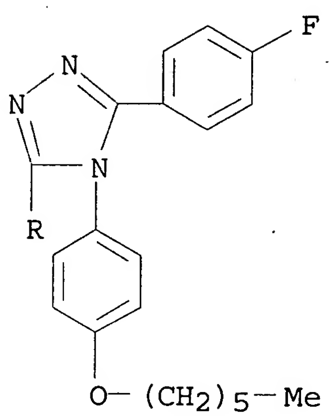
RN 837429-78-4 HCA

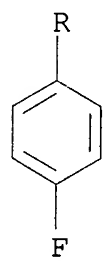
CN Phenol, 4,4'-[[2,5-bis(hexyloxy)-1,4-phenylene]di-2,1-ethenediyl]bis-, polymer with 3,5-bis(4-fluorophenyl)-4-[4-(hexyloxy)phenyl]-4H-1,2,4-triazole (9CI) (CA INDEX NAME)

CM 1

CRN 837429-74-0

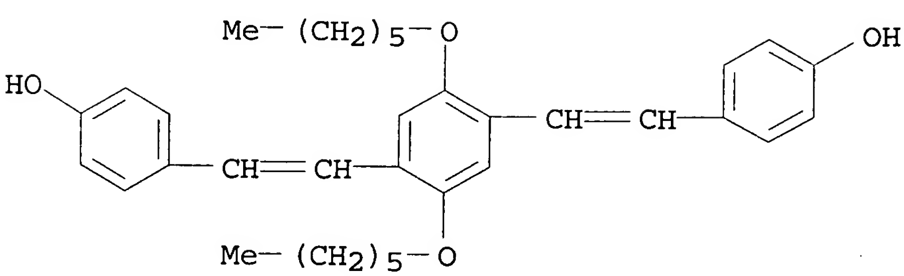
CMF C26 H25 F2 N3 O





CM 2

CRN 182500-36-3
CMF C34 H42 O4



RN 837429-79-5 HCA
CN Poly[[4-[4-(hexyloxy)phenyl]-4H-1,2,4-triazole-3,5-diyl]-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

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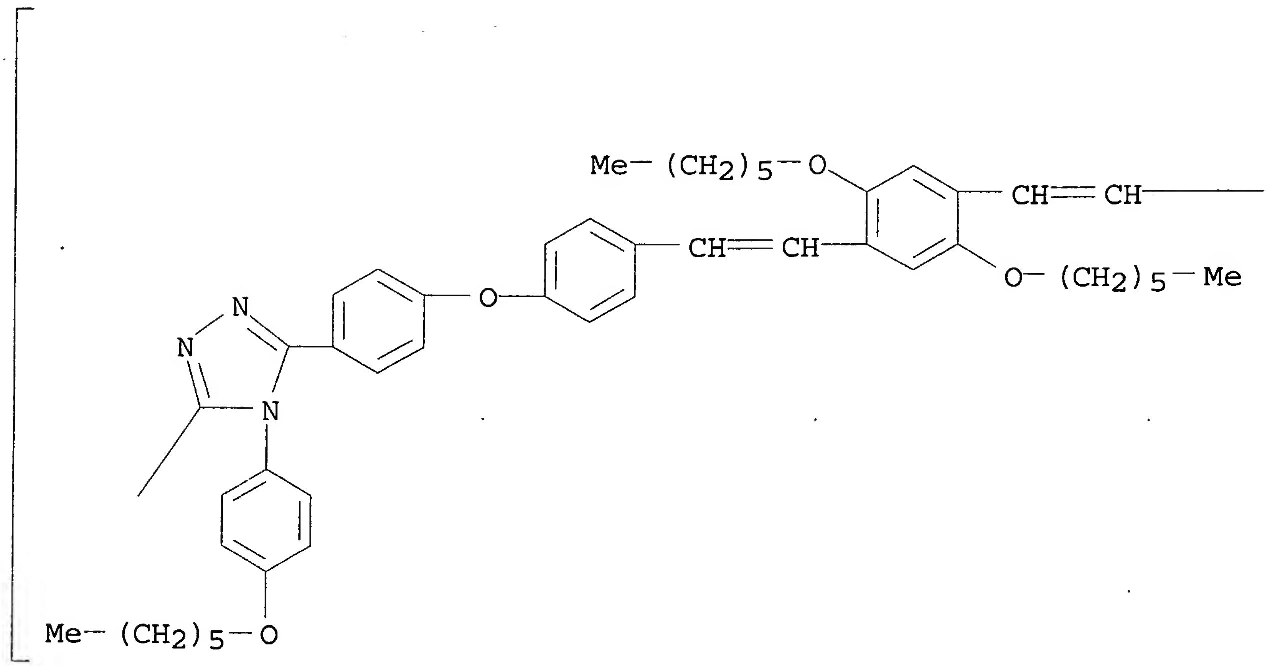

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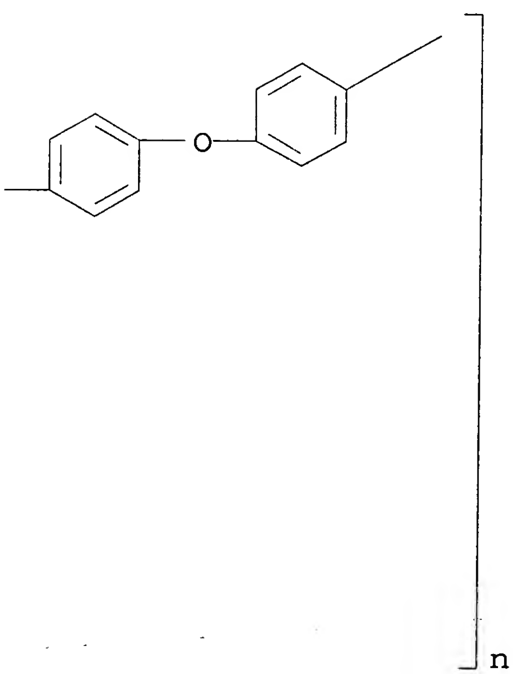
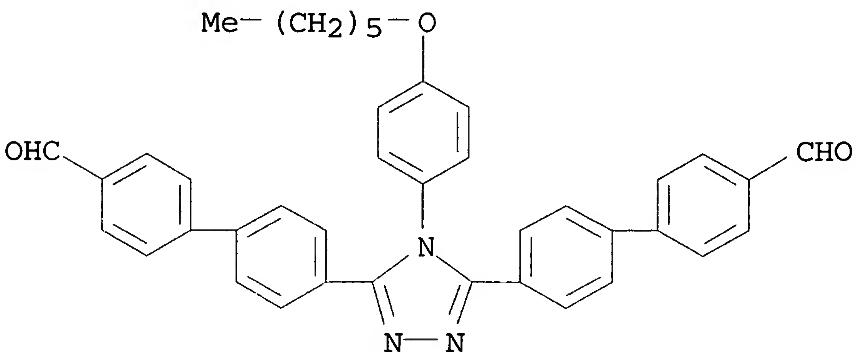


RN 837429-80-8 HCA
CN Phosphonic acid, [[2,5-bis(hexyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4',4'''-[4-[4-(hexyloxy)phenyl]-4H-1,2,4-triazole-3,5-diyl]bis[[1,1'-biphenyl]-4-carboxaldehyde] (9CI) (CA INDEX NAME)

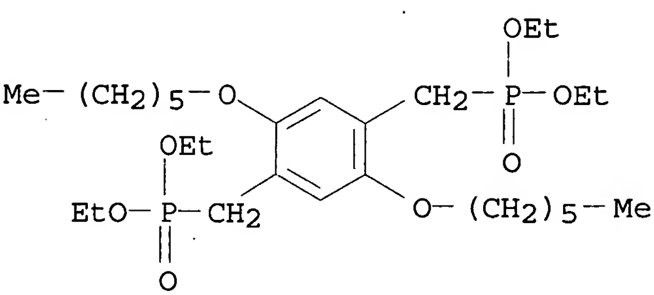
CM 1

CRN 837429-75-1
CMF C40 H35 N3 O3



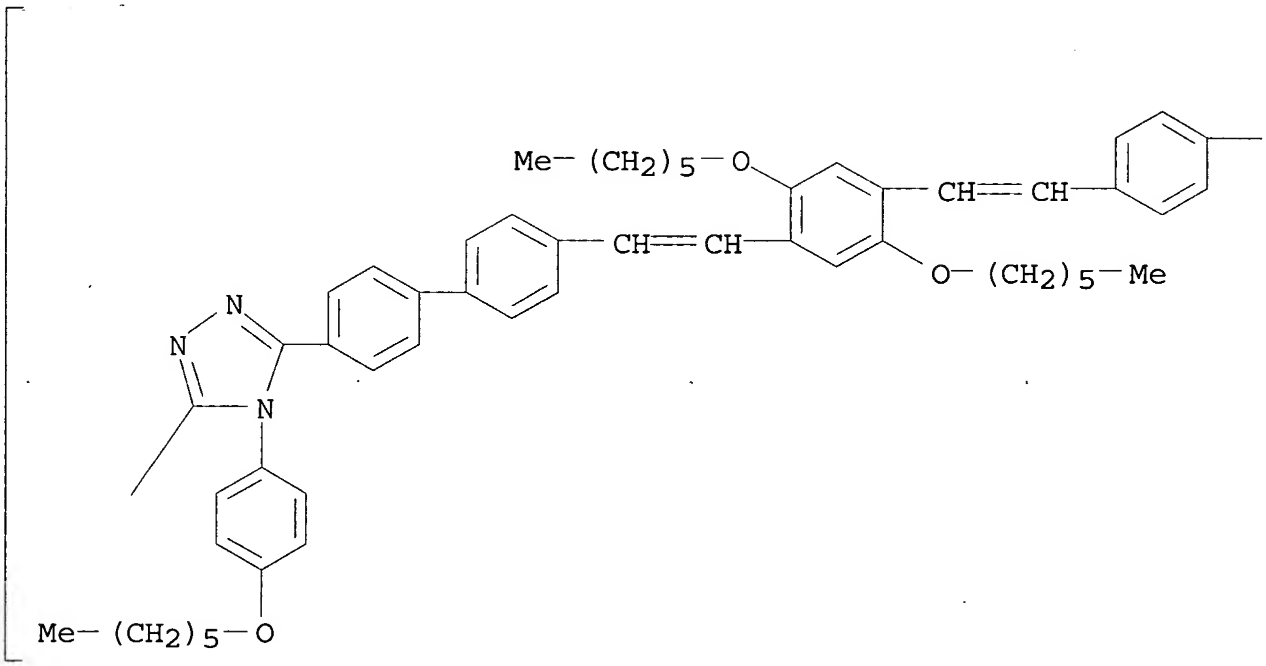
CM 2

CRN 182500-35-2
CMF C28 H52 O8 P2



RN 837429-81-9 HCA
CN Poly[[4-[4-(hexyloxy)phenyl]-4H-1,2,4-triazole-3,5-diyl][1,1'-biphenyl]-4,4'-diyl-1,2-ethenediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethenediyl[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)

PAGE 1-A



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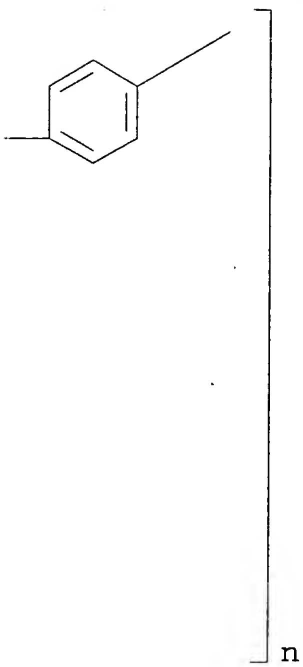
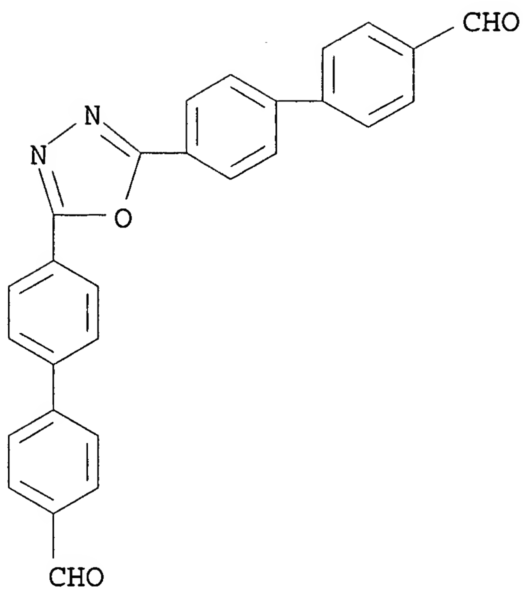


RN 837429-82-0 HCA
CN Phosphonic acid, [[2,5-bis(hexyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis[[1,1'-biphenyl]-4-carboxaldehyde] (9CI) (CA INDEX NAME)

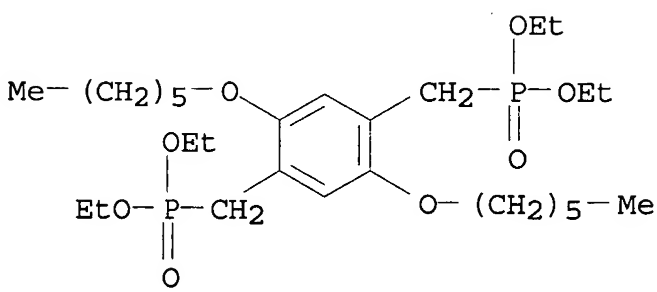
CM 1

CRN 837429-76-2
CMF C28 H18 N2 O3



CM 2

CRN 182500-35-2
CMF C28 H52 O8 P2



RN 837429-83-1 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl[1,1'-biphenyl]-4,4'-diyl-1,2-ethenediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethenediyl[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)

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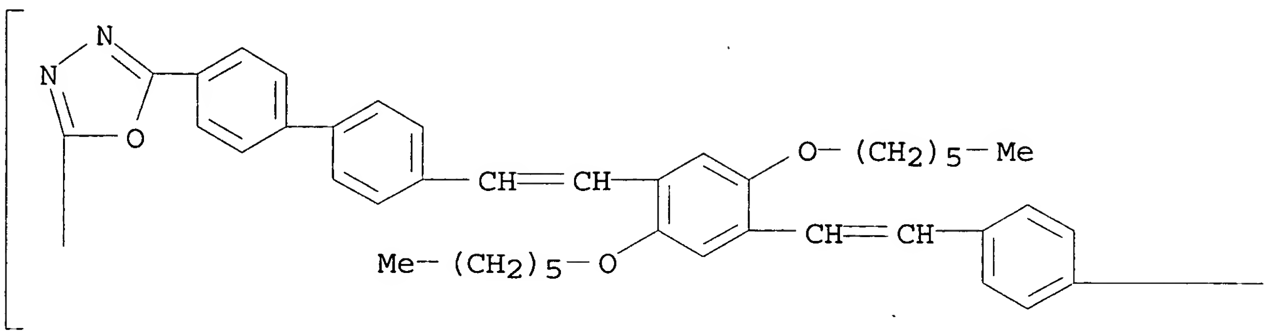
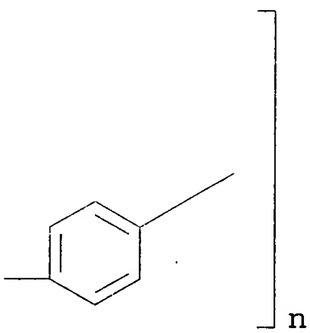


PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73, 76
ST oxadiazole triazole polyphenylenevinylene synthesis **electroluminescence** photoluminescence band structure redox
IT Band gap
Electroluminescent devices
Excimer
Luminescence
Luminescence, **electroluminescence**
Oxidation, electrochemical
Reduction, electrochemical
(synthesis, optical, and electrochem. properties of poly(arylenealkenylens) contg. electron-transporting arom. triazole or oxadiazole segments)
IT **581107-32-6 581107-33-7**
(synthesis, optical, and electrochem. properties of poly(arylenealkenylens) contg. electron-transporting arom. triazole or oxadiazole segments)
IT **837429-78-4P 837429-79-5P 837429-80-8P 837429-81-9P 837429-82-0P 837429-83-1P**

(synthesis, optical, and electrochem. properties of poly(arylenealkenylens) contg. electron-transporting arom. triazole or oxadiazole segments)

L72 ANSWER 2 OF 32 HCA COPYRIGHT 2005 ACS on STN

141:386160 Crosslinkable materials for organic **light emitting** devices and methods. Kelly, Stephen M.; O'Neill, Maryl; Aldred, Matthew P.; Vlachos, Panagiotis; Koch, Gene C. (ZLX Techno, Ltd., USA). PCT Int. Appl. WO 2004093154 A2 20041028, 84 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US9276 20040409. PRIORITY: US 2003-PV461444 20030409.

AB Charge-transporting or **light-emitting** polymerizable materials are described which comprise a reactive non-mesogenic compd. described by the general formula C-(S-D)n (C = chromophore; S = **spacer**; D = non-conjugated diene susceptible to photopolymn.; and n = 1-10). **Light-emitting** polymerizable materials are described which comprise reactive discotic compds. described by the general formula C'-(S'-D')m (C' = chromophore capable of forming a discotic liq. crystal; S' = **spacer**; D' = H or nonconjugated diene susceptible to photopolymn., provided that .gtoreq.2 D' are other than H; and n = 2-20). **Light-emitting** polymerizable materials are also described which comprise oligomeric or polymeric compds. are described by the general formula -[Ar1-(S"-D")q]r-[Ar2-(S"-D")p]s (Ar1 = a first arom. group; Ar2 = a second arom. group; S" = independently selected **spacers**; each D" = independently selected non-conjugated dienes susceptible to photopolymn.; p = 0-10; q = 0-10; n = 0-90 % (mol fraction); m = 100-n %; and there = 2-200 repeat units in the oligomeric or polymeric backbone, provided that p + q .gtoreq. 1; and further provided that when n = 0 then p .noteq. 0). Methods for forming charge-transporting or **light-emitting** materials are described which entail photopolymg. the reactive compds. Polymers producible by the method are described. Devices (e.g., electronic devices, **light-emitting** devices, esp. org. **light-emitting** devices, **lighting** elements, photovoltaic cells, and lasers) employing layers of the polymers are also described.

IT **783305-53-3 783305-54-4 783305-55-5 783305-56-6 783305-57-7 783305-58-8**

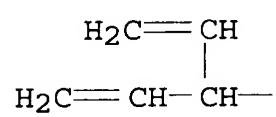
783305-59-9 783305-60-2 783305-61-3
(diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)

RN 783305-53-3 HCA
CN Platinum, [[octakis(1-ethenyl-2-propenyl) 6,6',6'',6''',6'''',6''''',6'''''',6'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[hexanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 783305-44-2
CMF C120 H144 N8 O24 Pt
CCI CCS

PAGE 1-A



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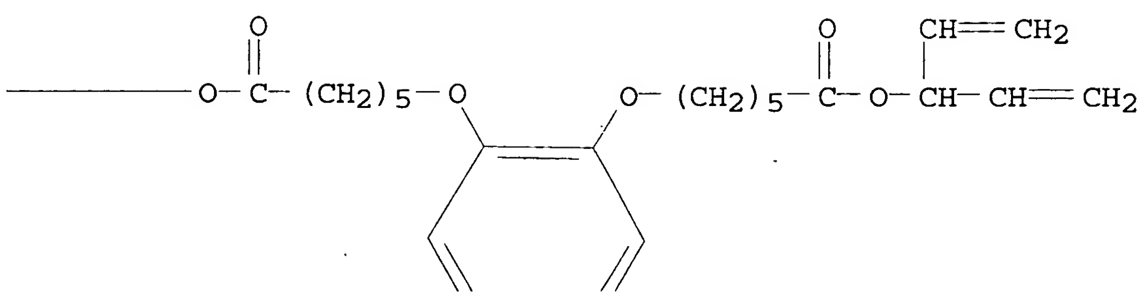

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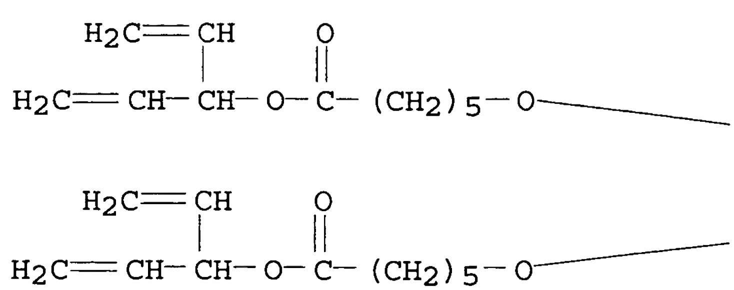

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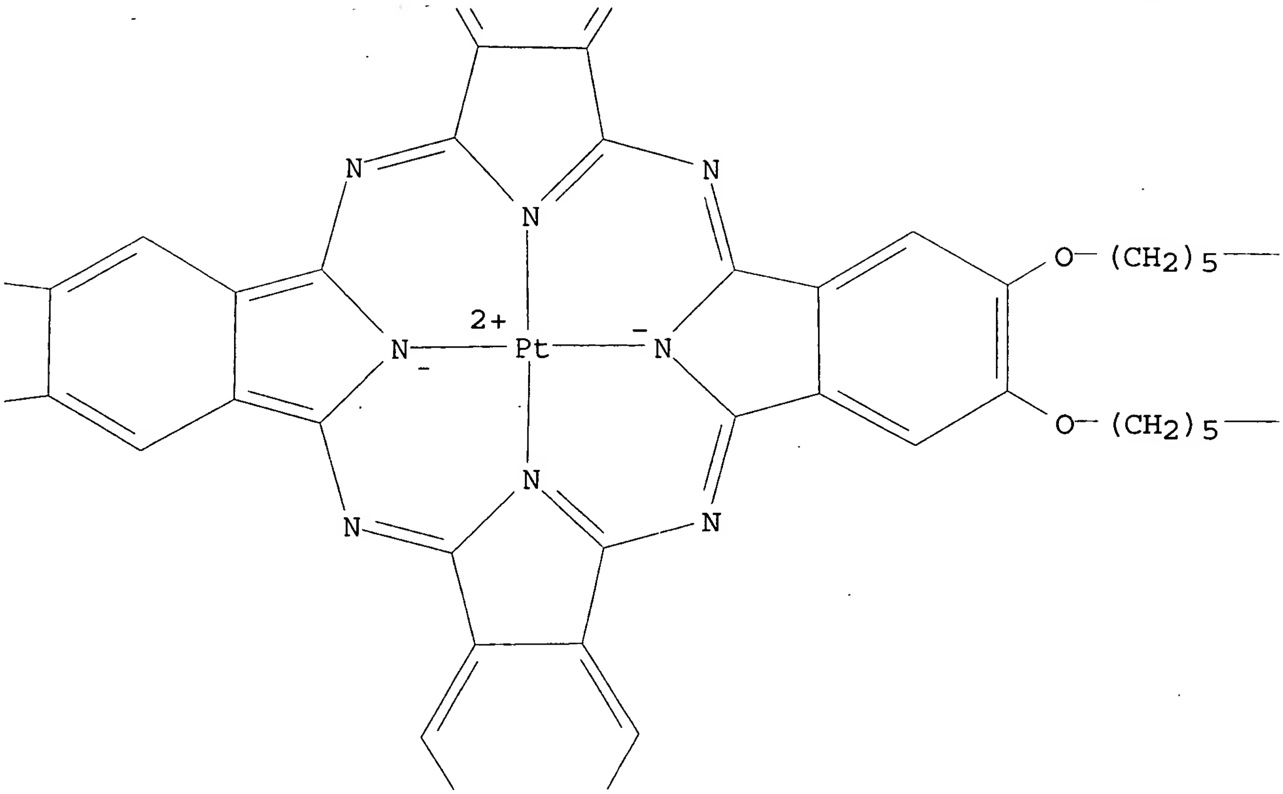

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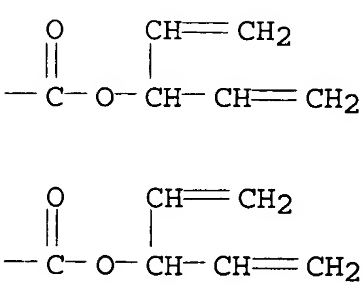

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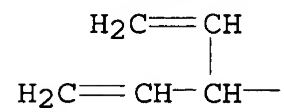

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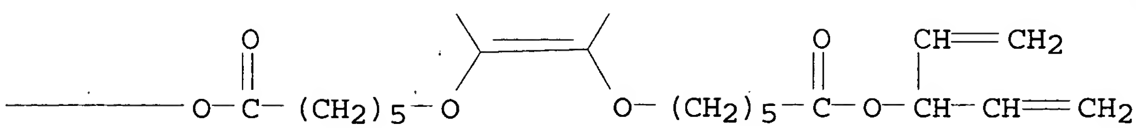
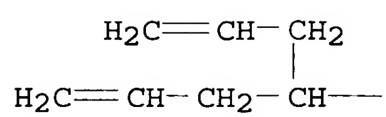


RN 783305-54-4 HCA
CN Platinum, [[octakis[1-(2-propenyl)-3-butenyl] 6,6',6'',6''',6'''',6''''',6'''''',6'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[hexanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 783305-45-3
CMF C136 H176 N8 O24 Pt
CCI CCS

PAGE 1-A



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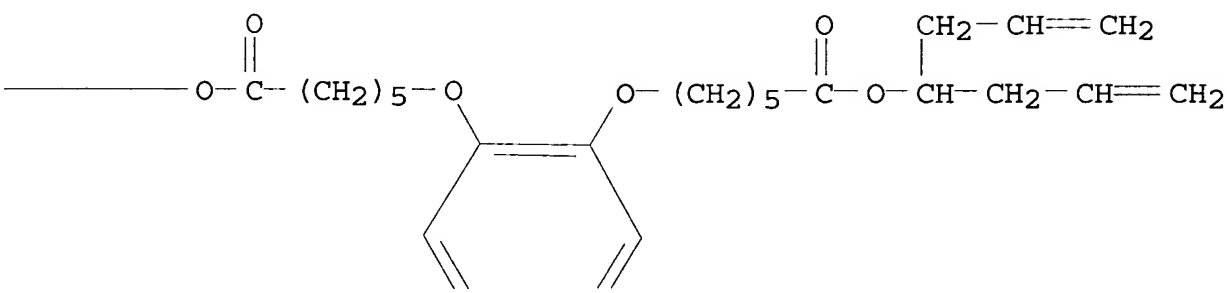

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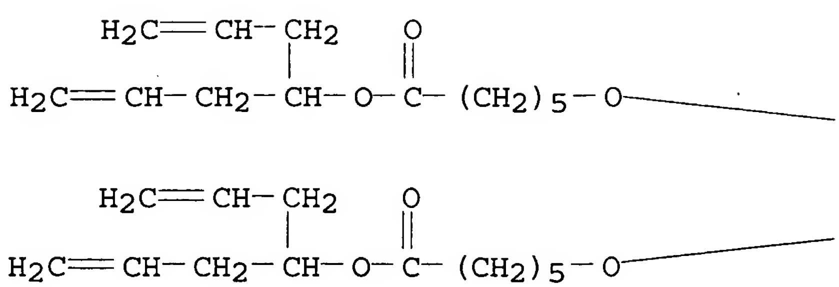

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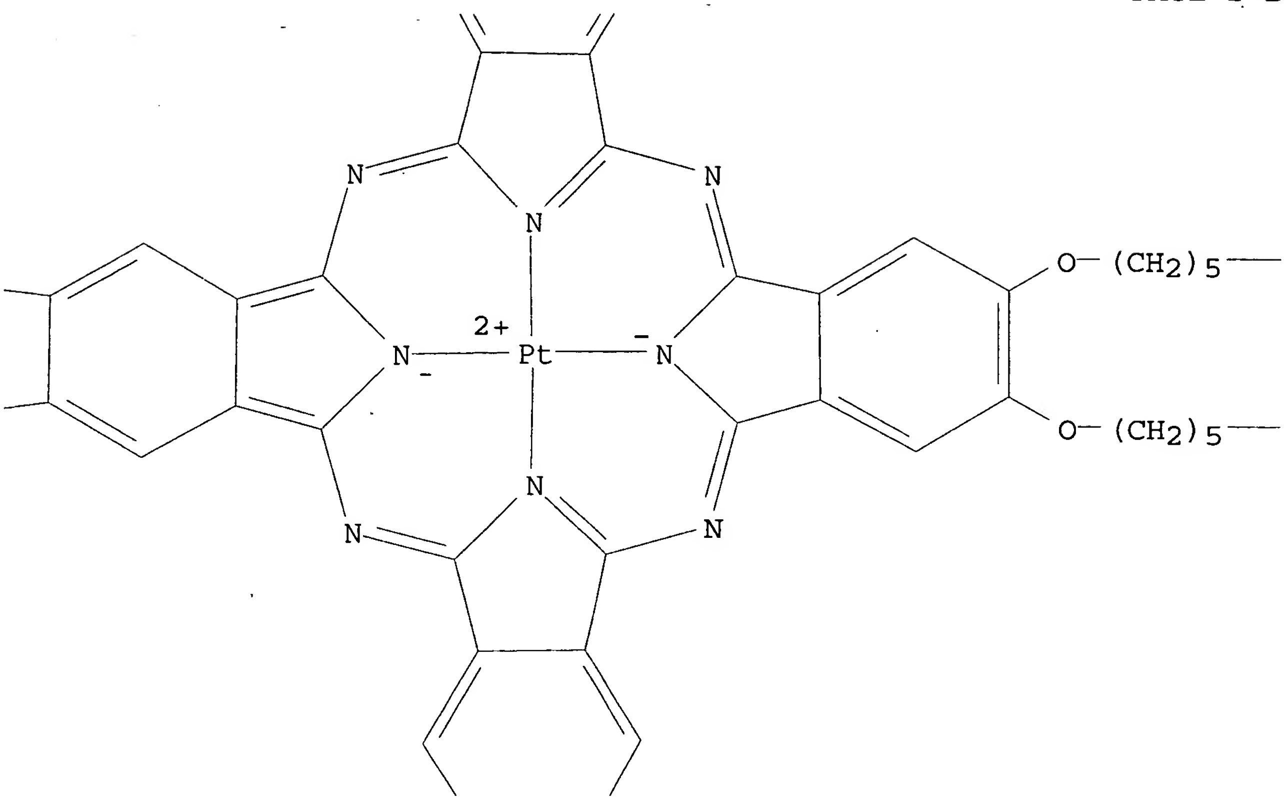

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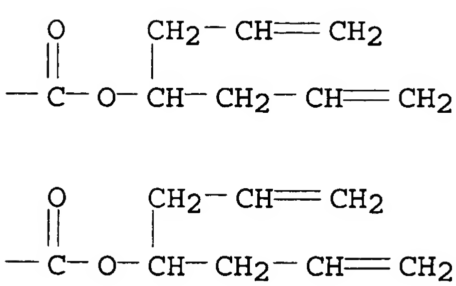

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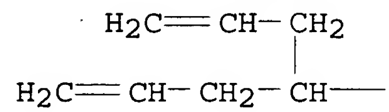

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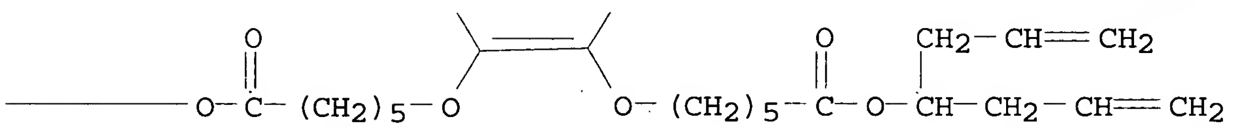


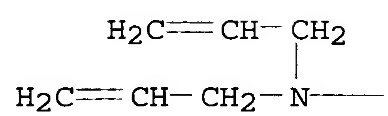
RN 783305-55-5 HCA

CN Platinum, [[N,N',N'',N''',N'''',N''''',N'''''',N'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis[oxy(1-oxo-6,1-hexanediyl)oxy]]octakis[N-2-propenyl-2-propen-1-aminato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 783305-46-4
CMF C128 H168 N16 O24 Pt
CCI CCS

PAGE 1-A



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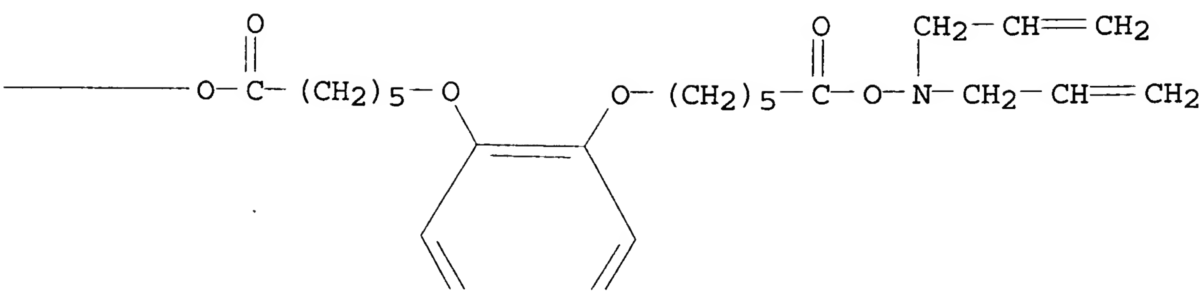

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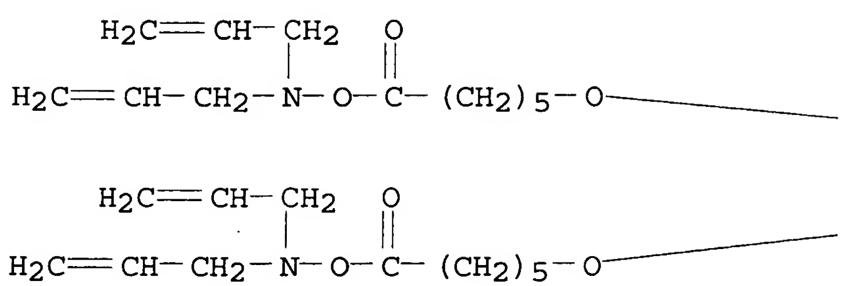

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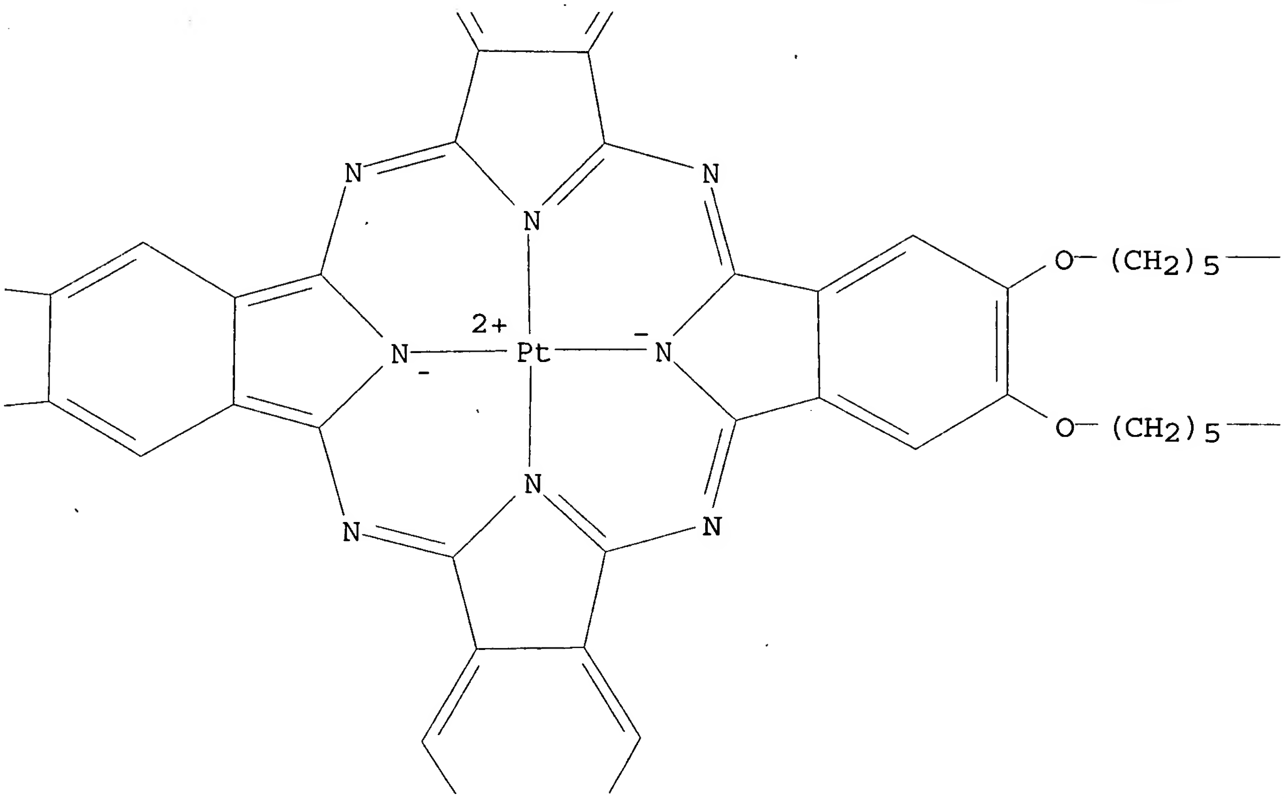

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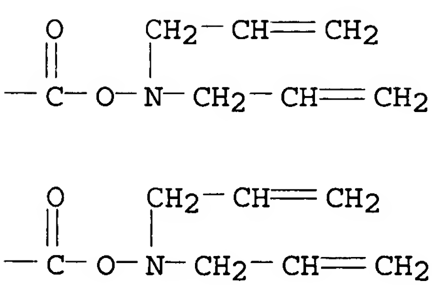

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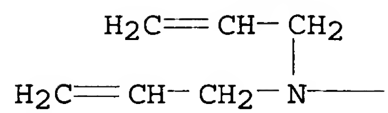

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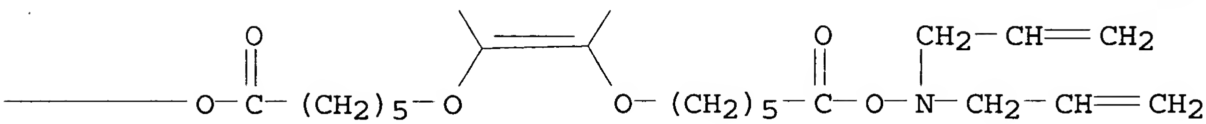
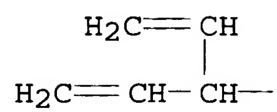


RN 783305-56-6 HCA
CN Platinum, [[octakis(1-ethenyl-2-propenyl) 7,7',7'',7''',7'''',7''''',7'''''',7'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[heptanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 783305-47-5
CMF C128 H160 N8 O24 Pt
CCI CCS

PAGE 1-A



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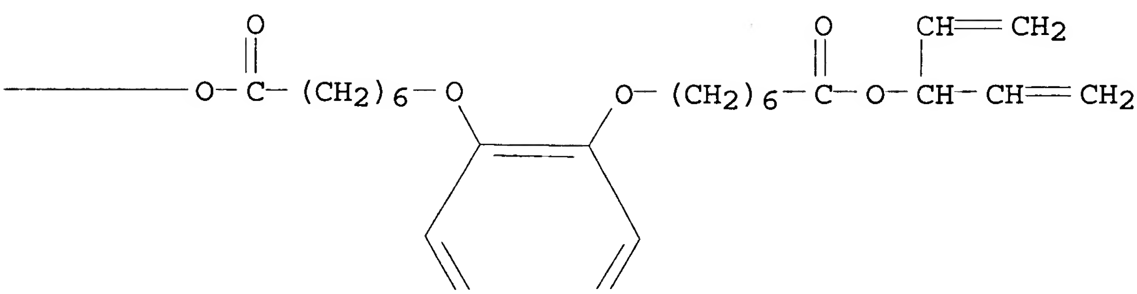

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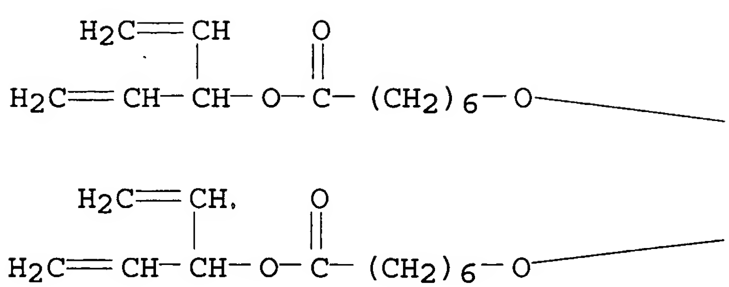

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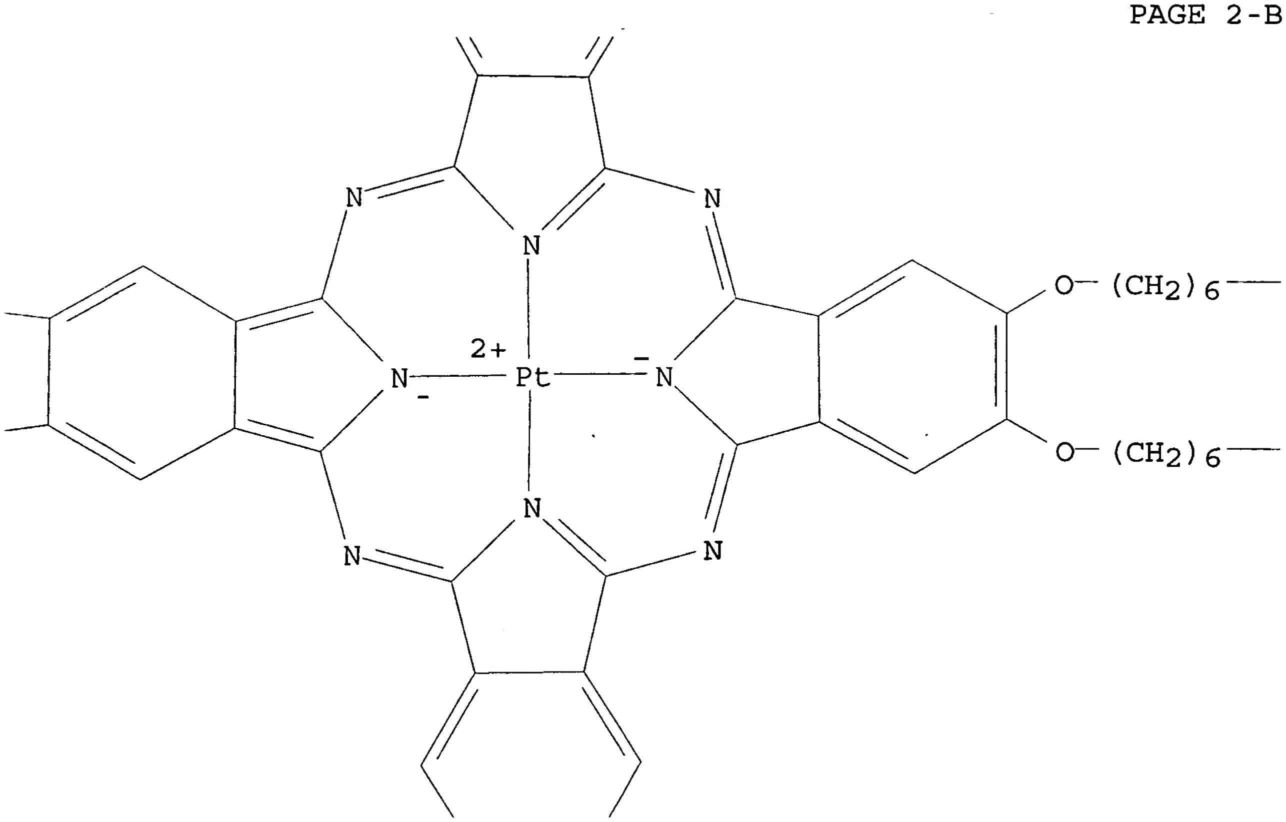

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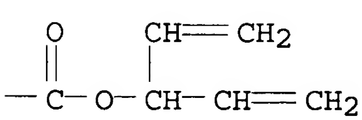

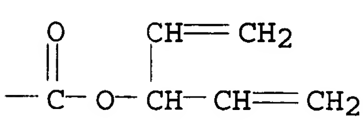

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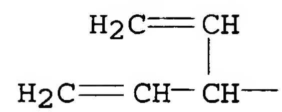

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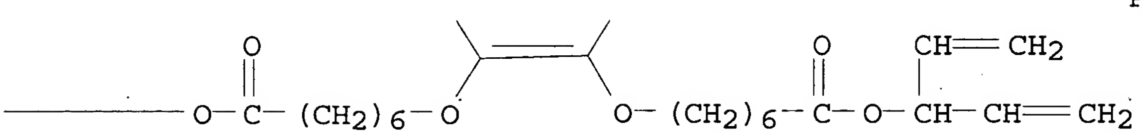
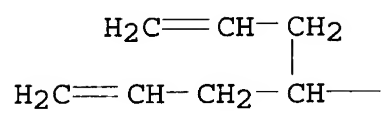


RN 783305-57-7 HCA
CN Platinum, [[octakis[1-(2-propenyl)-3-butenyl] 7,7',7'',7''',7'''',7''''',7'''''',7'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[heptanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 783305-48-6
CMF C144 H192 N8 O24 Pt
CCI CCS

PAGE 1-A



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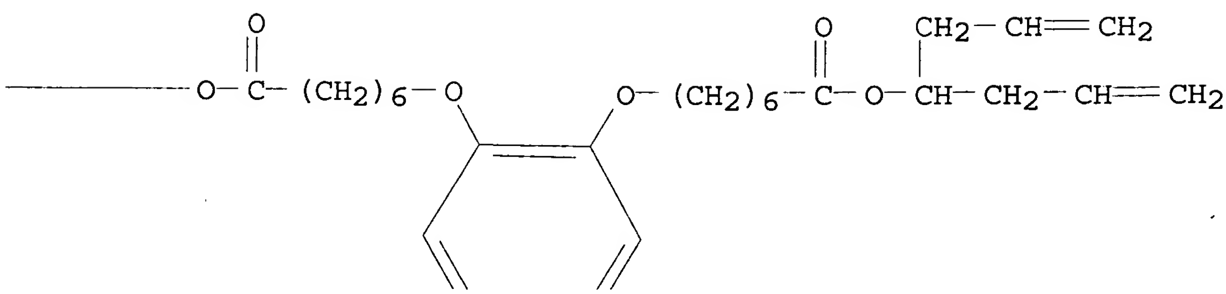
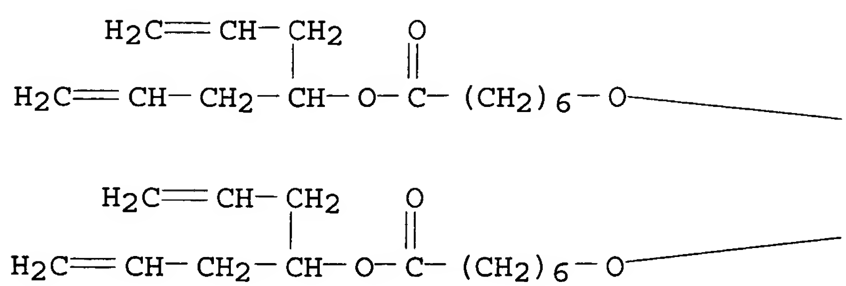
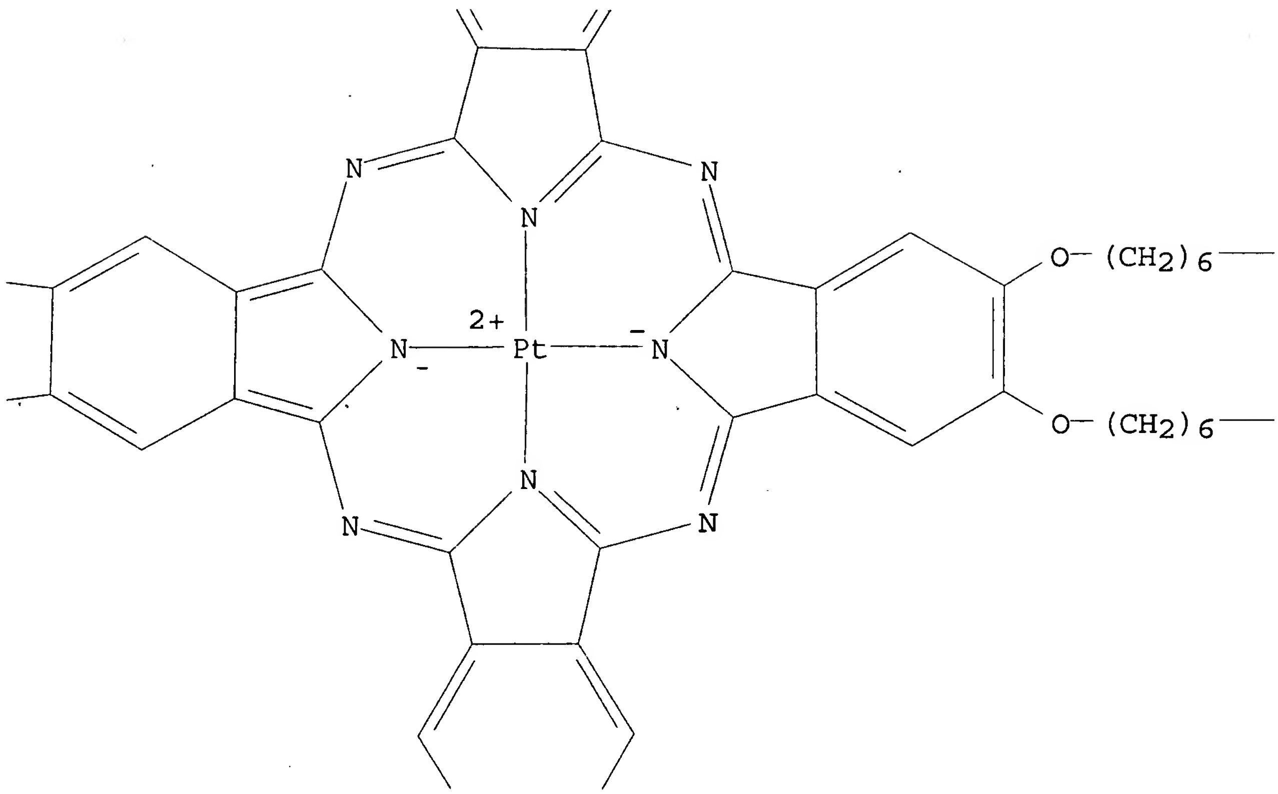


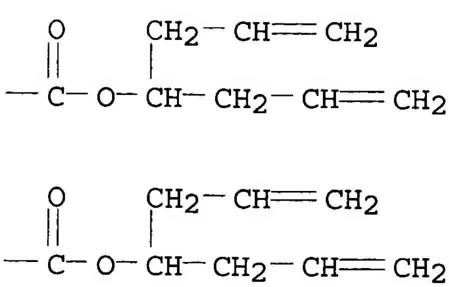
PAGE 2-A



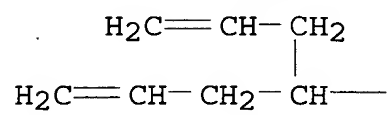
PAGE 2-B



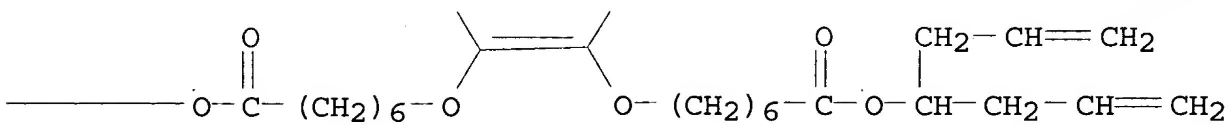
PAGE 2-C



PAGE 3-A



PAGE 3-B



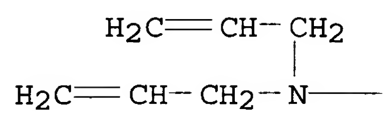
RN 783305-58-8 HCA

CN Platinum, [[N,N',N'',N''',N'''',N''''',N'''''',N''''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis[oxy(1-oxo-7,1-heptanediyl)oxy]]octakis[N-2-propenyl-2-propen-1-aminato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

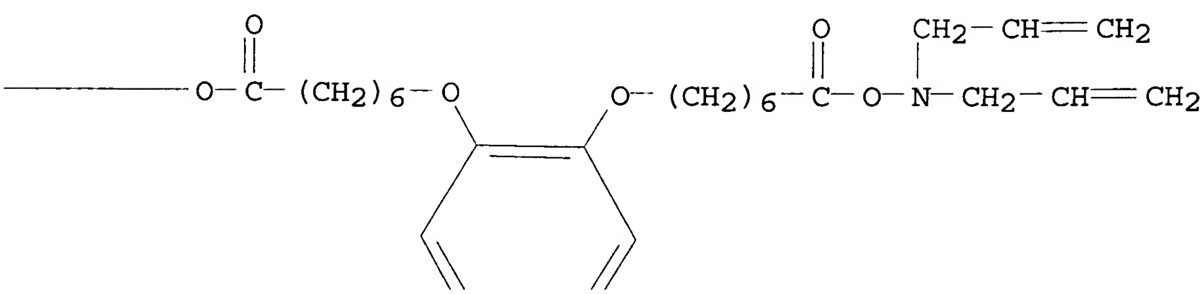
CM 1

CRN 783305-49-7
CMF C136 H184 N16 O24 Pt
CCI CCS

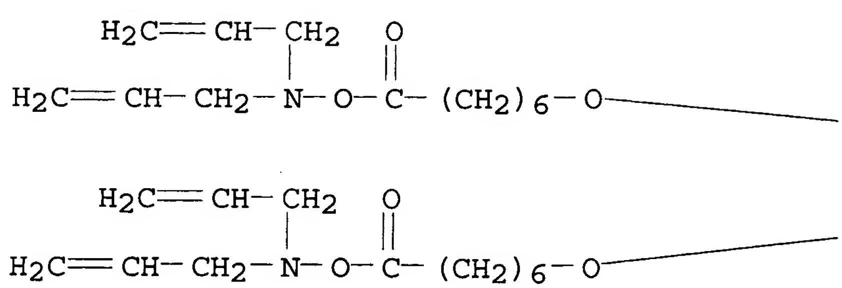
PAGE 1-A



PAGE 1-B



PAGE 2-A



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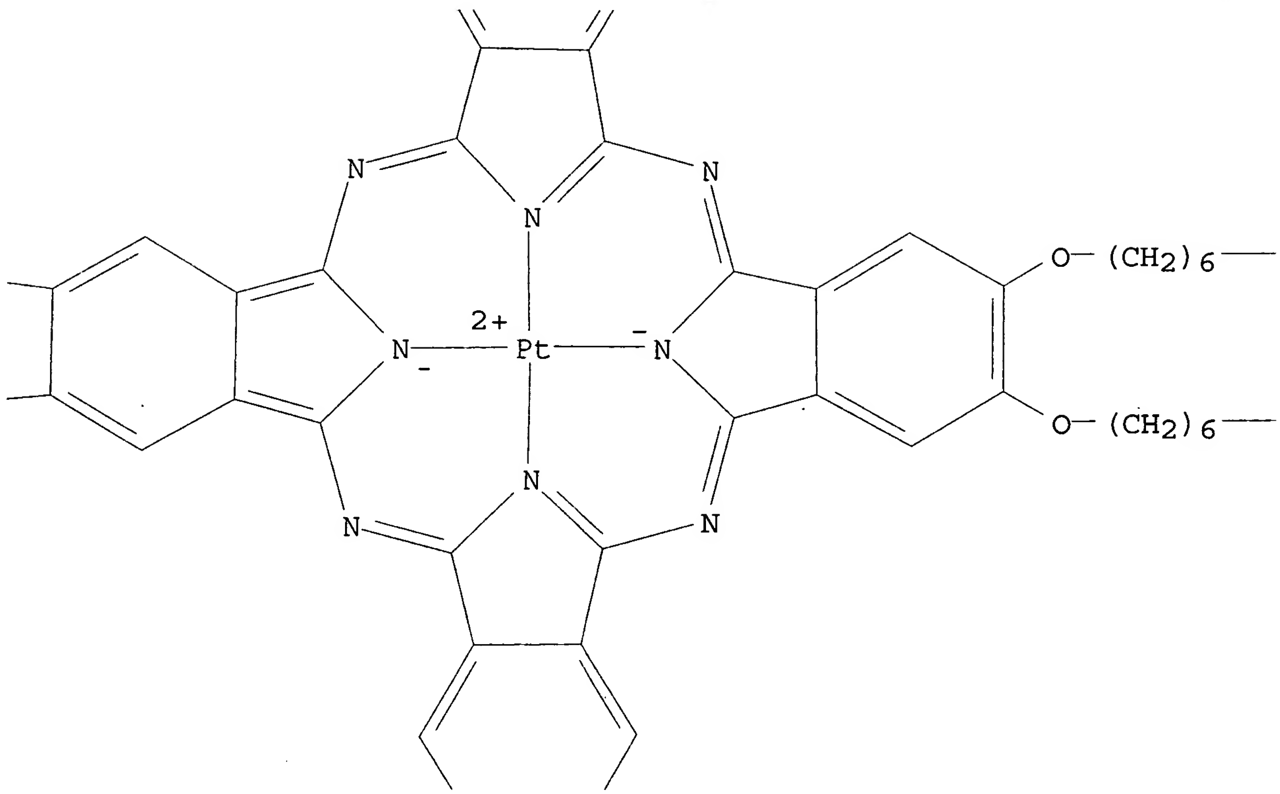
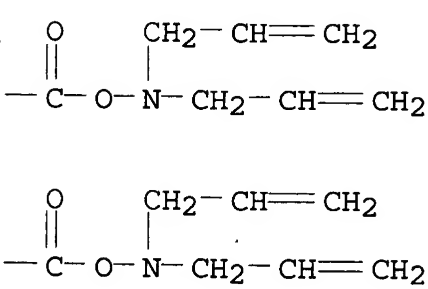
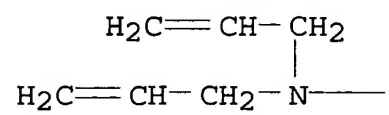


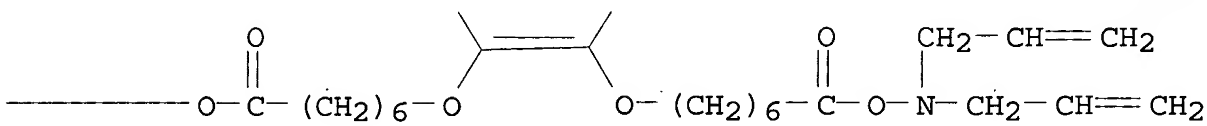
PAGE 2-C



PAGE 3-A



PAGE 3-B

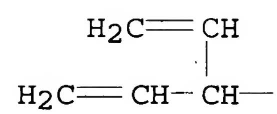


RN 783305-59-9 HCA
CN Platinum, [[octakis(1-ethenyl-2-propenyl) 8,8',8'',8''',8'''',8''''',8'''''',8'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[octanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

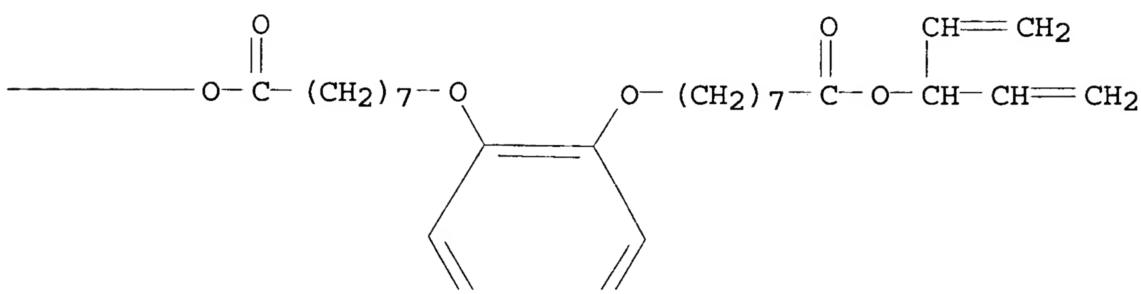
CM 1

CRN 783305-50-0
CMF C136 H176 N8 O24 Pt
CCI CCS

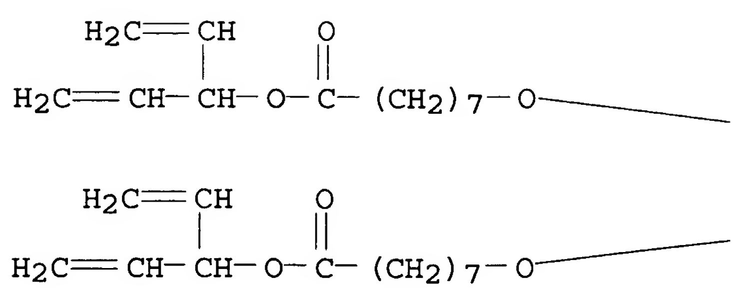
PAGE 1-A



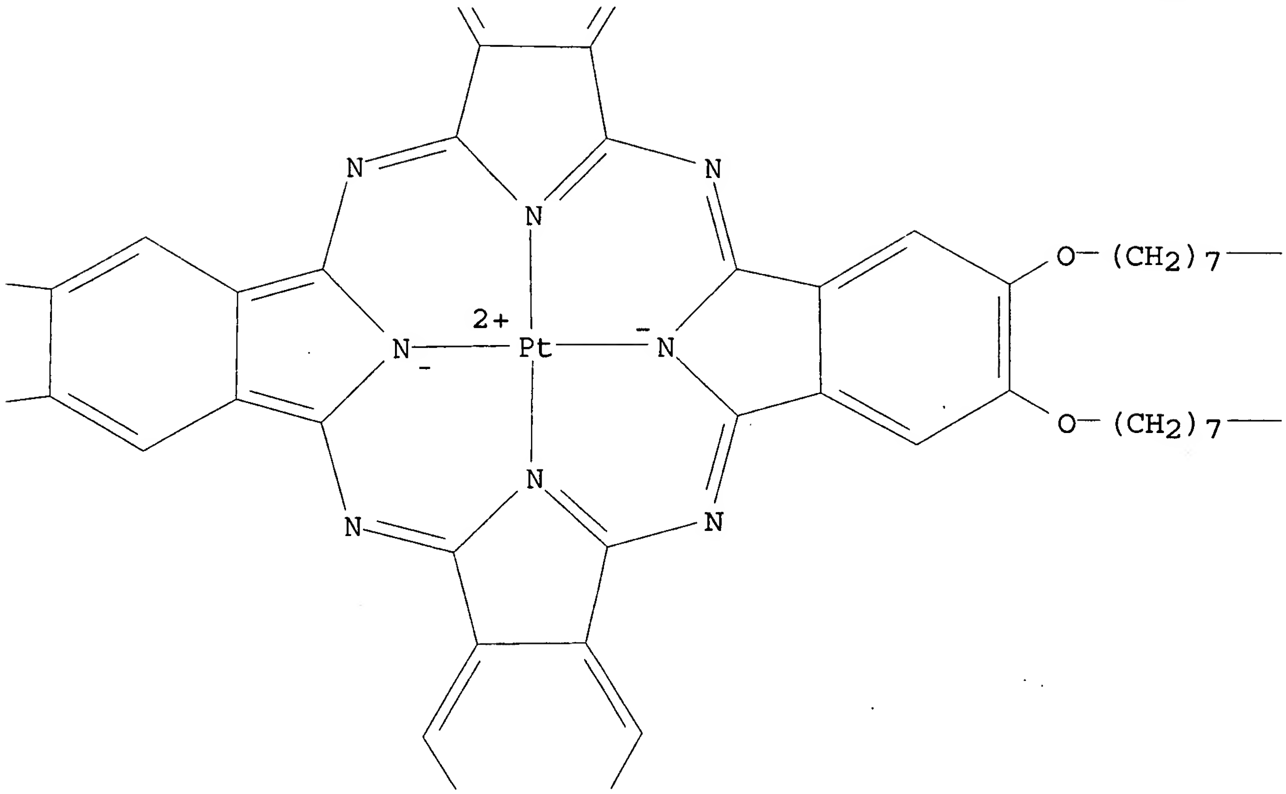
PAGE 1-B



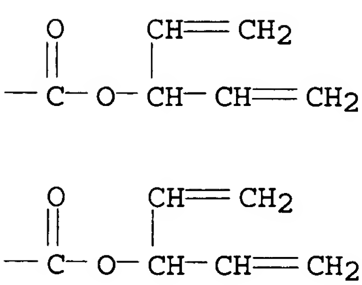
PAGE 2-A



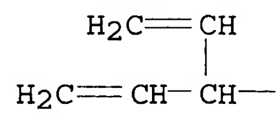
PAGE 2-B



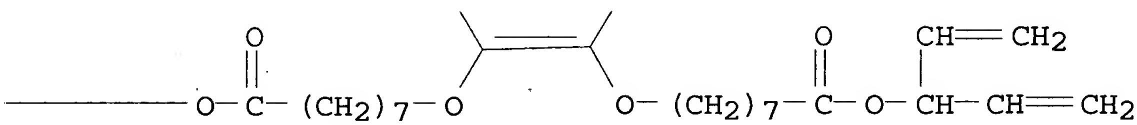
PAGE 2-C



PAGE 3-A



PAGE 3-B

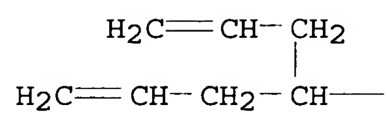


RN 783305-60-2 HCA
CN Platinum, [[octakis[1-(2-propenyl)-3-butenyl] 8,8',8'',8''',8'''',8''''',8'''''',8'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis(oxy)]octakis[octanoato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

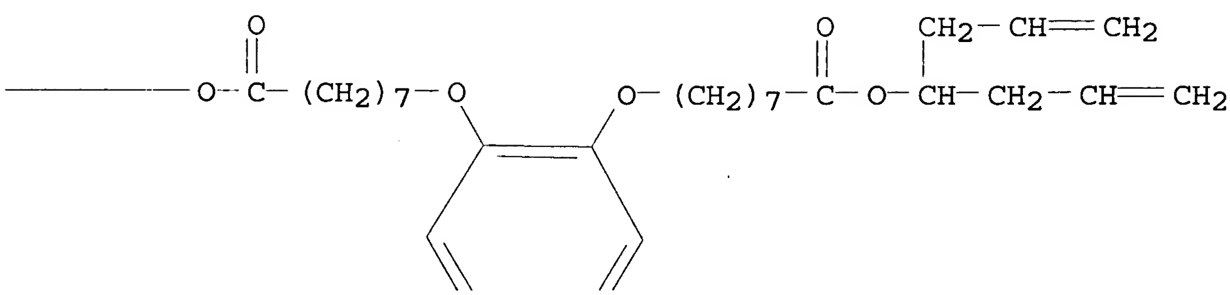
CM 1

CRN 783305-51-1
CMF C152 H208 N8 O24 Pt
CCI CCS

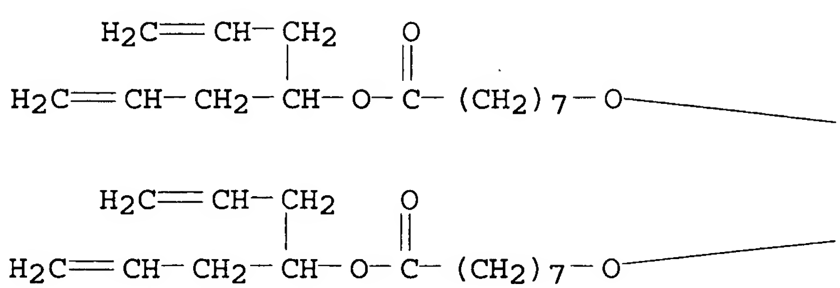
PAGE 1-A



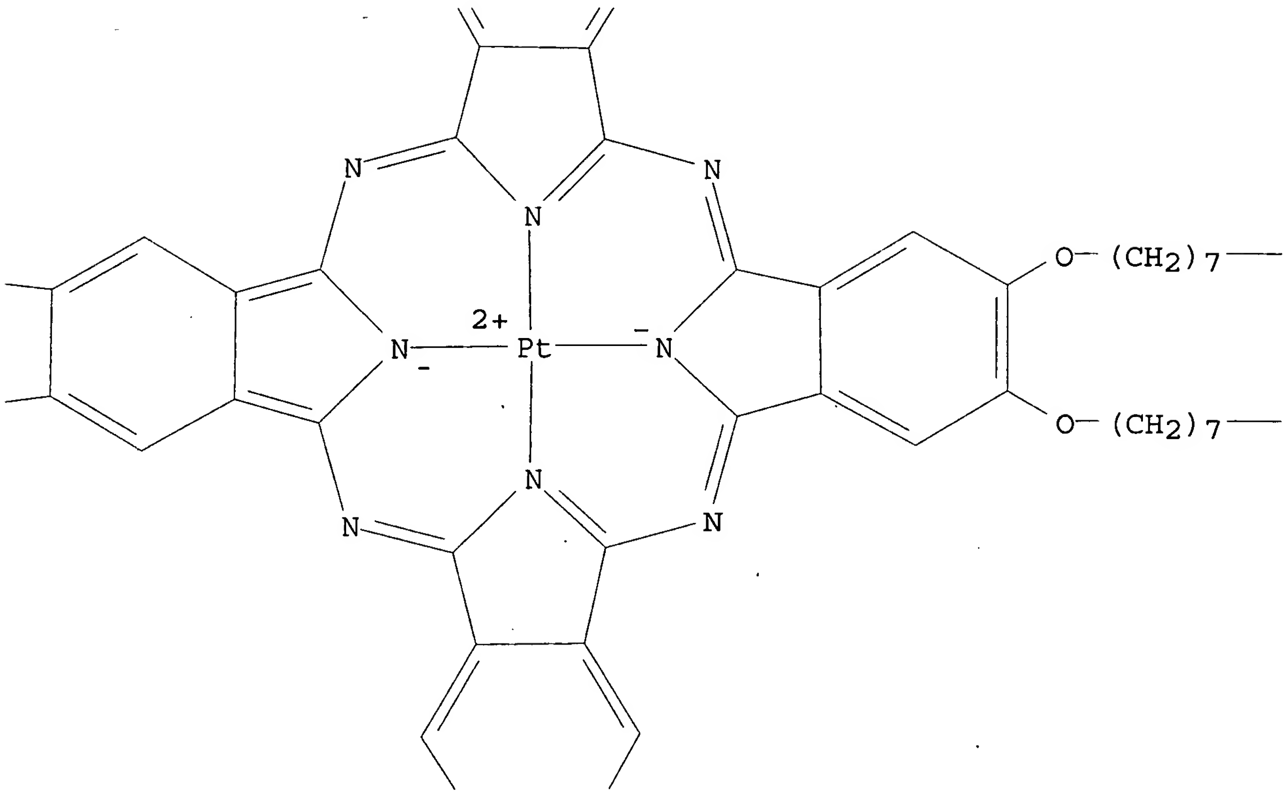
PAGE 1-B



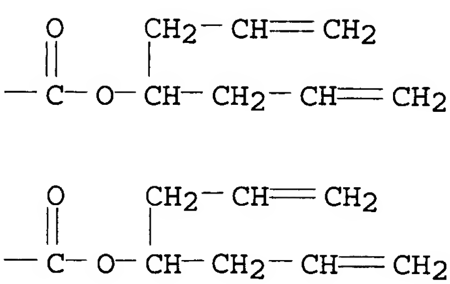
PAGE 2-A



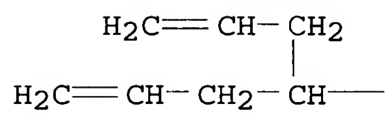
PAGE 2-B



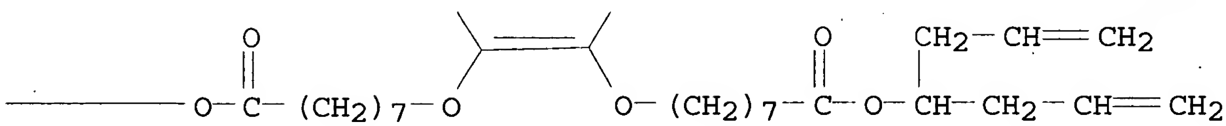
PAGE 2-C



PAGE 3-A



PAGE 3-B

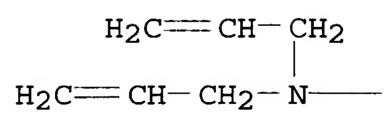


RN 783305-61-3 HCA
CN Platinum, [[N,N',N'',N''',N'''',N''''',N'''''',N'''''''-[(29H,31H-phthalocyanine-2,3,9,10,16,17,23,24-octayl-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32)octakis[oxy(1-oxo-8,1-octanediyl)oxy]]octakis[N-2-propenyl-2-propen-1-aminato]](2-)]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

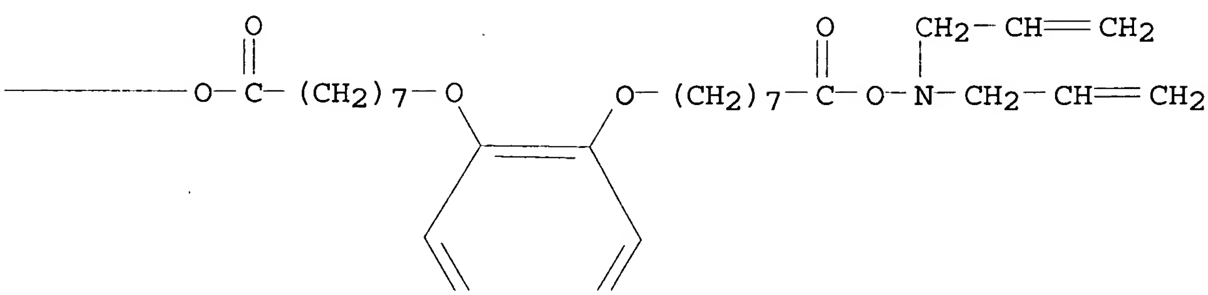
CM 1

CRN 783305-52-2
CMF C144 H200 N16 O24 Pt
CCI CCS

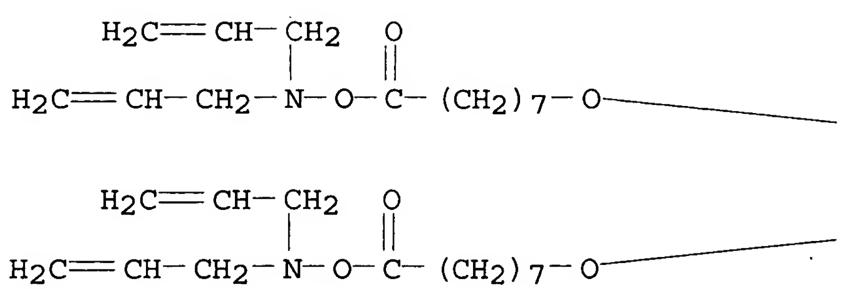
PAGE 1-A



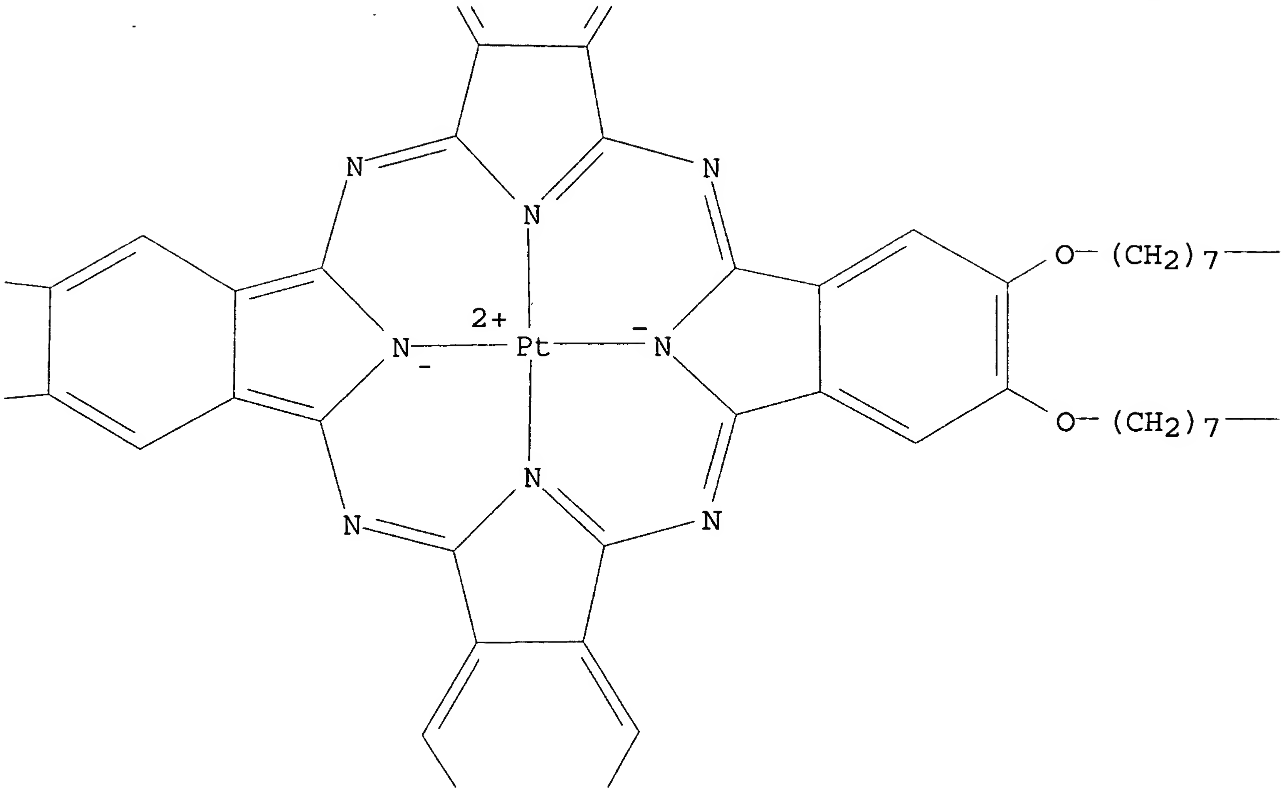
PAGE 1-B



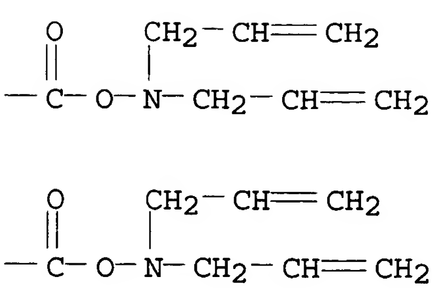
PAGE 2-A



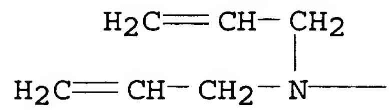
PAGE 2-B



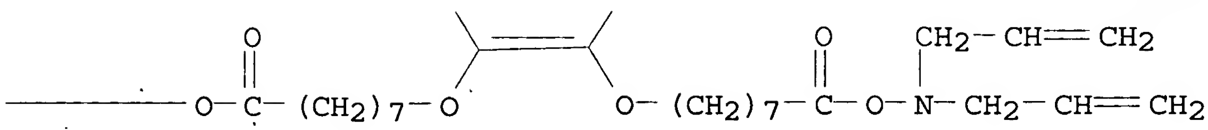
PAGE 2-C



PAGE 3-A



PAGE 3-B



IC ICM H01L
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74, 76
ST diene substituted polymerizable charge transporting **light emitting** material; **electroluminescent** device diene substituted polymerizable material; photopolymn charge transporting **light emitting** material prodn
IT **Electroluminescent** devices
Photoelectric devices
Semiconductor devices
Semiconductor lasers
(diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)
IT Luminescent substances
(**electroluminescent**; diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)
IT Polymerization
(photopolymn.; diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)
IT 782497-35-2 782497-36-3 782497-37-4 782497-38-5 782497-39-6
782497-40-9 782497-41-0 782497-42-1 782497-43-2 782497-44-3
782497-45-4 782497-46-5 782497-47-6 782497-48-7 782497-49-8
782497-50-1 782497-51-2 782497-52-3 782497-53-4
783305-53-3 783305-54-4 783305-55-5
783305-56-6 783305-57-7 783305-58-8

783305-59-9 783305-60-2 783305-61-3
(diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)

IT 782497-12-5 782497-13-6 782497-14-7 782497-15-8 782497-16-9
782497-17-0 782497-18-1 782497-19-2 782497-20-5 782497-21-6
782497-22-7 782497-23-8 782497-25-0 782497-27-2 782497-29-4
782497-30-7 782497-31-8 782497-32-9 782497-33-0 782497-34-1
783305-44-2 783305-45-3 783305-46-4 783305-47-5 783305-48-6
783305-49-7 783305-50-0 783305-51-1 783305-52-2
(diene-substituted polymerizable charge-transporting and **light-emitting** materials and polymers produced and prodn. by photopolymn. and use of polymers)

L72 ANSWER 3 OF 32 HCA COPYRIGHT 2005 ACS on STN
141:296366 Liquid crystalline and photoluminescent properties of homo- and copolyesters composed of 1,3,4-thiadiazole and different lengths of aliphatic chains. Nakashima, Shinji; Watanabe, Manabu; Sato, Moriyuki (Department of Material Science, Faculty of Science and Engineering, Shimane University, 1060 Nishikawatsu, Matsue-shi, Shimane, 690-8504, Japan). Kobunshi Ronbunshu, 61(7), 377-384 (Japanese) 2004. CODEN: KBRBA3. ISSN: 0386-2186. Publisher: Kobunshi Gakkai.

AB New semi-rigid homo- and copolyesters made up of a terphenyl analog of 1,3,4-thiadiazole, which is composed of a central 1,3,4-thiadiazole ring and benzene rings in both sides (2,5-diphenyl-1,3,4-thiadiazole (DTD)), and different lengths (-(CH2)6- and -(CH2)11-) of aliph. chains were synthesized by high temp. soln. polycondensation, and their liq. cryst. (LC) and photoluminescent (PL) properties were examd. Differential scanning calorimetry measurements (DSC), POM observations and X-ray analyses described that these polymers form thermotropic LC (smectic) phases independent of copolymer compn., and improvement in the thermal properties are below our expectation. UV-vis and PL spectral measurements suggested that the polymers **emit** blue PL **light** in solns. and in solid states, and band gap energies (Eg) in the solid states are 3.17-3.25 eV. Quantum efficiencies (.PHI.PL) were 15.1-24.5%.

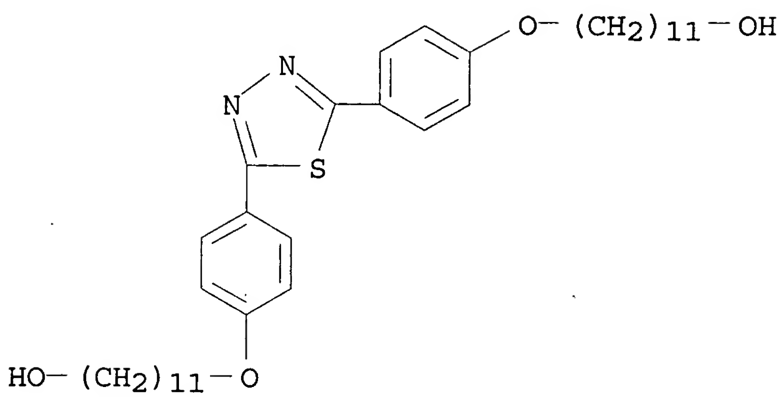
IT **329280-25-3P 329280-26-4P 765276-07-1P**
765276-08-2P 765276-09-3P
(liq. cryst. and photoluminescent properties of homo- and copolyesters composed of 1,3,4-thiadiazole and different lengths of aliph. chains)

RN 329280-25-3 HCA

CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 11,11'-[1,3,4-thiadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[1-undecanol] (9CI) (CA INDEX NAME)

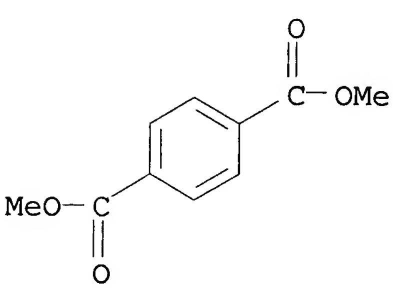
CM 1

CRN 329280-22-0
CMF C36 H54 N2 O4 S



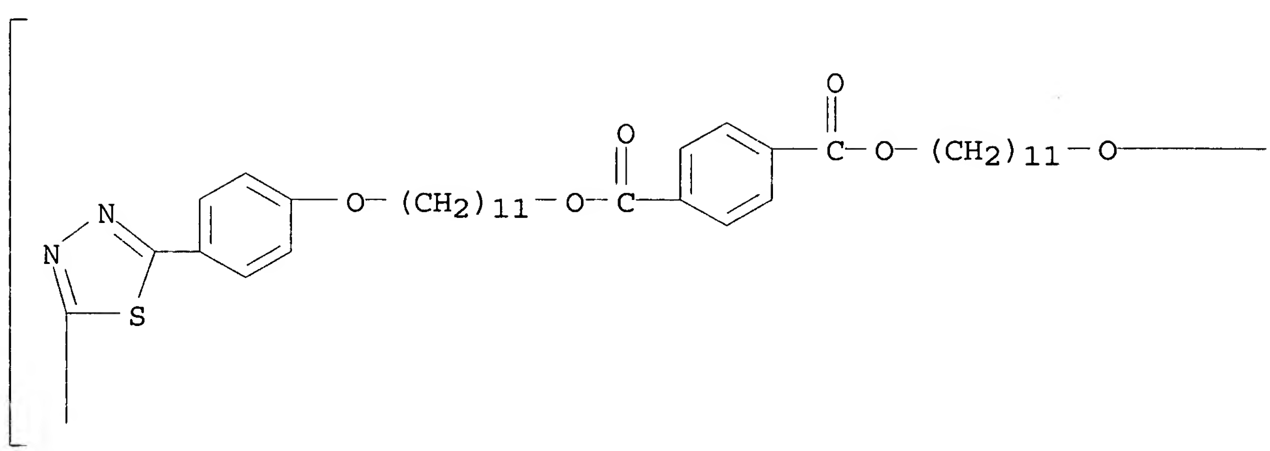
CM 2

CRN 120-61-6
CMF C10 H10 O4



RN 329280-26-4 HCA
CN Poly(1,3,4-thiadiazole-2,5-diyl-1,4-phenyleneoxy-1,11-undecanediyloxycarbonyl-1,4-phenylenecarbonyloxy-1,11-undecanediyloxy-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A



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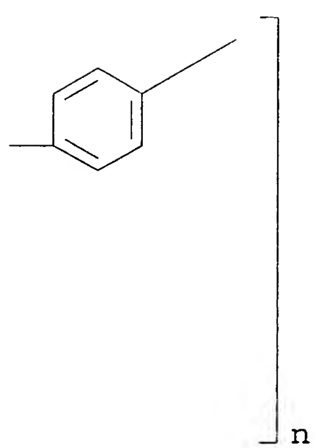


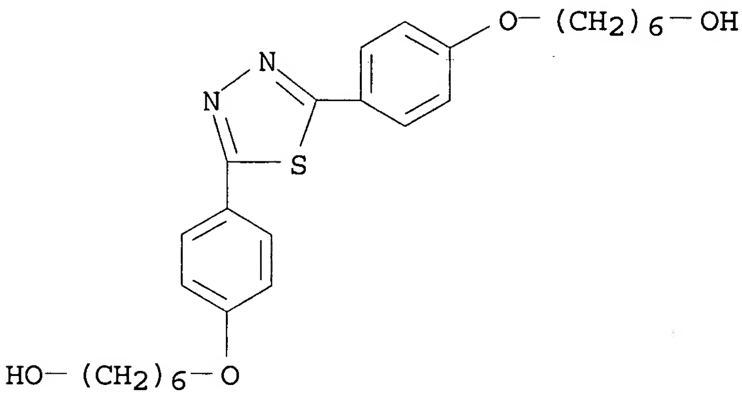
RN 765276-07-1 HCA

CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 6,6'-[1,3,4-thiadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[1-hexanol] (9CI) (CA INDEX NAME)

CM 1

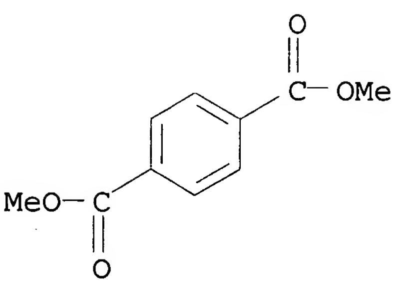
CRN 765276-06-0

CMF C26 H34 N2 O4 S



CM 2

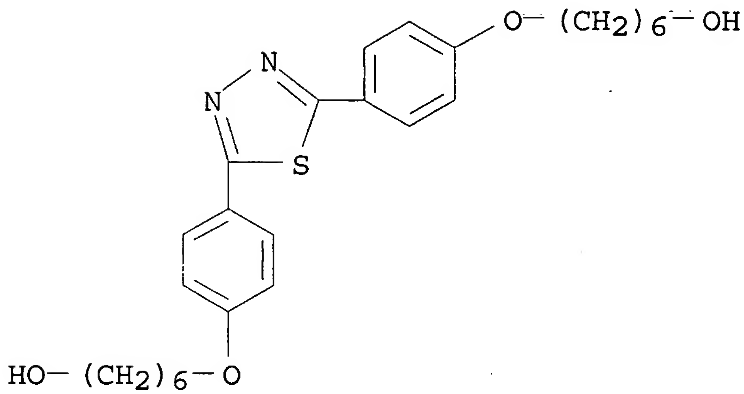
CRN 120-61-6
CMF C10 H10 O4



RN 765276-08-2 HCA
CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 6,6'-[1,3,4-thiadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[1-hexanol] and 11,11'-[1,3,4-thiadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[1-undecanol] (9CI) (CA INDEX NAME)

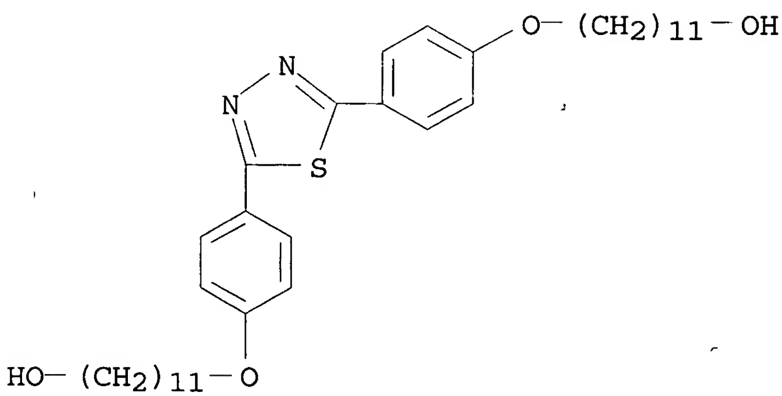
CM 1

CRN 765276-06-0
CMF C26 H34 N2 O4 S



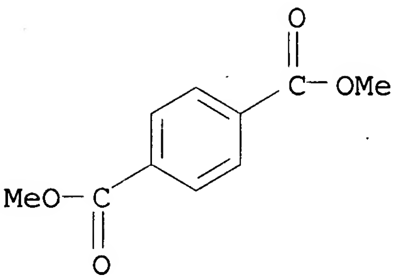
CM 2

CRN 329280-22-0
CMF C36 H54 N2 O4 S



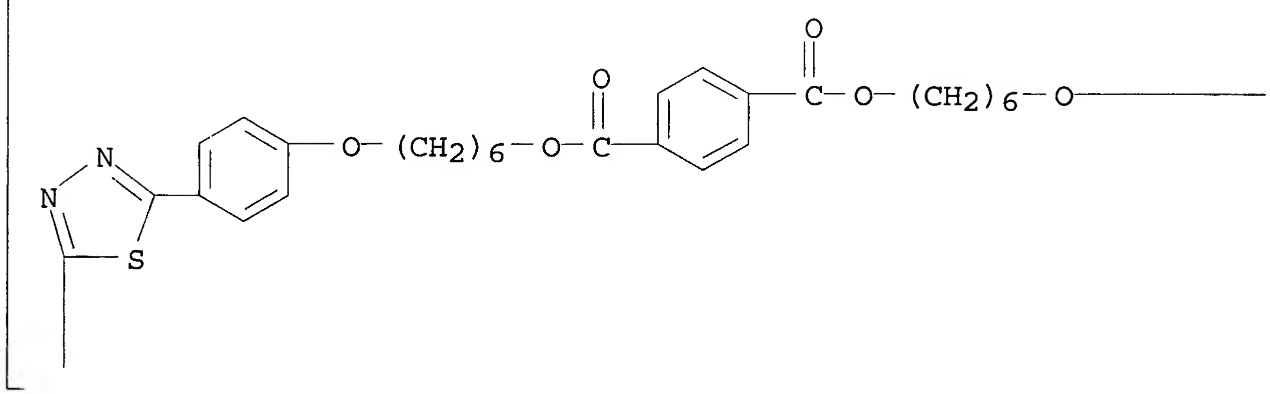
CM 3

CRN 120-61-6
CMF C10 H10 O4

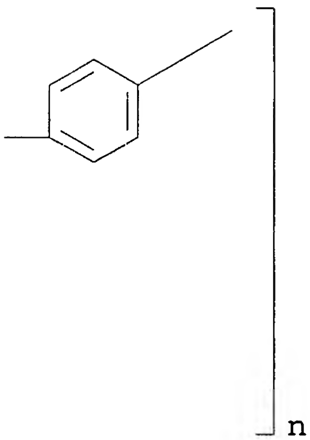


RN 765276-09-3 HCA
CN Poly(1,3,4-thiadiazole-2,5-diyl-1,4-phenyleneoxy-1,6-hexanediyloxycarbonyl-1,4-phenylenecarbonyloxy-1,6-hexanediyloxy-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 75
ST liq cryst photoluminescent thiadiazole copolyester prepn **spacer** effect property
IT **329280-25-3P 329280-26-4P 765276-07-1P 765276-08-2P 765276-09-3P**
(liq. cryst. and photoluminescent properties of homo- and copolyesters composed of 1,3,4-thiadiazole and different lengths of aliph. chains)

L72 ANSWER 4 OF 32 HCA COPYRIGHT 2005 ACS on STN
141:157574 Improvement of efficiency of the single-layer polymer **light-emitting** diodes: the exciton confinement in the emitting layer by conjugated 1,3,4-oxadiazole. Kim, Joo Hyun; Lee, Hoosung (Department of Chemistry, Sogang University, Seoul, 121-742, S. Korea). Synthetic Metals, 144(2), 169-176 (English) 2004. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science B.V..
AB Two luminescent polymers, poly[(2-methoxy-(5-(2-(4-oxyphenyl)-5-phenyl-1,3,4-oxadiazole)-hexyloxy))-1,4-phenylenevinylene-alt-2,5-didodecyloxy-1,4-phenylenevinylene] (I) and poly[(2-methoxy-(5-(2-(4-oxyphenyl)-5-(4-biphenyl)-1,3,4-oxadiazole)-hexyloxy))-1,4-phenylenevinylene-alt-2,5-didodecyloxy-1,4-phenylenevinylene] (II) were prepd. by the Heck coupling reaction. Hole blocking-electron transporting pendant groups, conjugated 1,3,4-oxadiazole (OXD) derivs., were attached onto the main chain via linear 1,6-hexamethylenedioxy **spacers.** The band gap of I and II is 2.12 eV and the photoluminescence (PL) max. of I and II is located at 576 and 573 nm, resp. The max. **electroluminescence** (**EL**) of single layer devices

based on I and is 583 and 580 nm, resp. These values are close to those of poly(2-methoxy-5-ethylhexyloxy-1,4-phenylenevinylene) (MEH-PPV). The relative PL quantum yield of I and II is 1.9 and 2.0 times higher than that of MEH-PPV. In the PL and **EL** spectra, emission from CNST (1,2-diphenyl-2'-cyanoethene) pendants was not obsd., indicating that the energy transfer from OXD pendants to the main chain takes place completely. The OXD pendants did not affect the **EL** and PL max. of the main chain. A single-layer **EL** device based on I and II had efficiency of 0.1 c.d./A at 300 mA/cm2 and 0.17 c.d./A at 323 mA/cm2, resp., which was significantly higher than that of MEH-PPV measured under the same conditions. The energy levels calcd. from optical and electrochem. data strongly support the evidence that OXD pendants are good hole blocking groups and promote electron-hole (exciton) recombination.

IT **728880-71-5P 728880-72-6P**
(prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light -emitting** diodes)

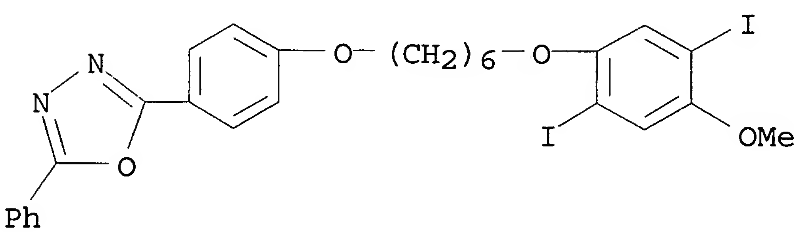
RN 728880-71-5 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[6-(2,5-diiodo-4-methoxyphenoxy)hexyl]oxy]phenyl]-5-phenyl-, polymer with 1,4-bis(dodecyloxy)-2,5-diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 728880-69-1

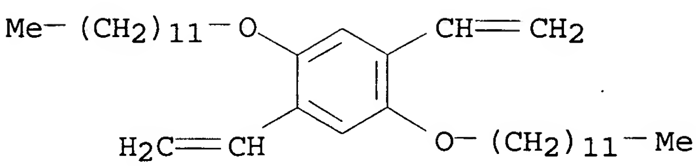
CMF C27 H26 I2 N2 O4



CM 2

CRN 209050-49-7

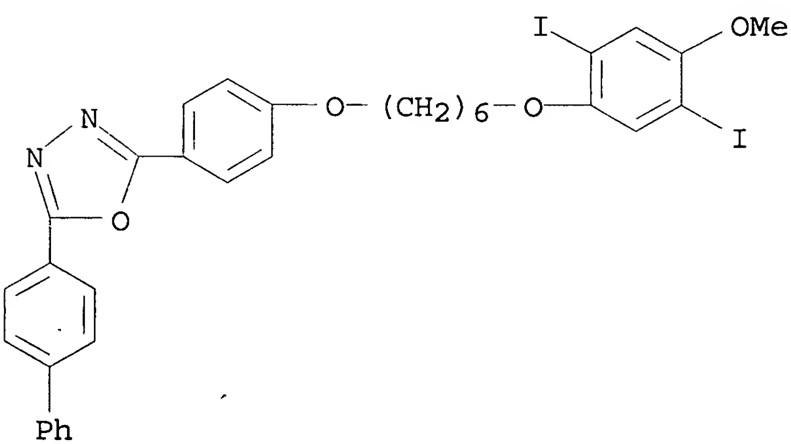
CMF C34 H58 O2



RN 728880-72-6 HCA
CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-[4-[[6-(2,5-diiodo-4-methoxyphenoxy)hexyl]oxy]phenyl]-, polymer with 1,4-bis(dodecyloxy)-2,5-diethenylbenzene (9CI) (CA INDEX NAME)

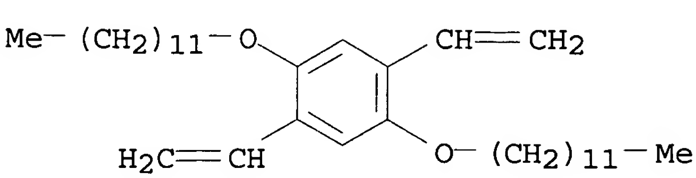
CM 1

CRN 728880-70-4
CMF C33 H30 I2 N2 O4



CM 2

CRN 209050-49-7
CMF C34 H58 O2



CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73

ST methoxyoxyphenyl oxadiazole polyphenylenevinylene prepn conjugation length electron transport; photoluminescence band gap polyphenylenevinylene oxadiazole pendant conjugated polymer; emitter polyphenylenevinylene oxadiazole group **EL** device efficiency

IT Polymerization
(Heck coupling; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT Coupling reaction
(Heck; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT Polymers, preparation
(conjugated; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT Redox reaction
(electrochem.; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT Band gap
(optical; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT Poly(arylenealkenylenes)
(oxadiazole group contg.; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT **Electroluminescent** devices
Electron-hole recombination
Exciton
Luminescence
Luminescence, **electroluminescence**
(prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT 728880-65-7P 728880-66-8P 728880-67-9P 728880-68-0P
(intermediate; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT 728880-69-1P 728880-70-4P
(monomer; prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light-emitting** diodes)

IT 708264-21-5P **728880-71-5P** **728880-72-6P**
730957-72-9P
(prepn. of poly(oxadiazole-phenylene vinylene)s with exciton

confinement for improved efficiency of single-layer **light** -**emitting** diodes)

IT 65-85-0, Benzoic acid, reactions 92-92-2, 4-Phenylbenzoic acid 99-76-3, Methyl 4-hydroxy benzoate 7803-57-8, Hydrazine hydrate 25952-53-8, 1-[3-(Dimethylamino)propyl]-3-ethylcarbodiimide hydrochloride 605669-23-6
(prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light** -**emitting** diodes)

IT 10025-87-3, Phosphorus chloride oxide (PCl3O)
(prepn. of poly(oxadiazole-phenylene vinylene)s with exciton confinement for improved efficiency of single-layer **light** -**emitting** diodes)

L72 ANSWER 5 OF 32 HCA COPYRIGHT 2005 ACS on STN

141:24047 Synthesis and characterization of poly(1,4-phenylenevinylene) derivatives containing liquid crystalline oxadiazole groups. Sun, Xiaobo; Li, Min; Liu, Dong; Zhang, Peng; Tian, Wenjing (Institute of Materials Science and Engineering and A. G. MacDiarmid Laboratory, Jilin University, Changchun, 130012, Peop. Rep. China). Journal of Applied Polymer Science, 91(1), 396-403 (English) 2004. CODEN: JAPNAB. ISSN: 0021-8995. Publisher: John Wiley & Sons, Inc..

AB Two novel poly(1,4-phenylenevinylene) (PPV) derivs. contg. liq. cryst. oxadiazole side chains were prepd. by a dehydrochlorination process. The homopolymer poly[2-methoxy-5-((2-methoxy-phenyl)-5-hexyloxy-phenyloxy-1,3,4-oxadiazole)-1,4-phenylenevinylene] (HO-PE6) is insol. in common solvents, whereas the copolymer poly[2-methoxy-5-((2-methoxy-phenyl)-5-hexyloxy-phenyloxy-1,3,4-oxadiazole)-(2-methoxy-5-(2'-ethylhexyloxy))-1,4-phenylenevinylene] (CO-PE6) is sol. in common solvents such as chloroform, THF, and p-xylene. The mol. structure of CO-PE6 was confirmed by FTIR, 1H-NMR, UV-vis spectroscopy, and polarized light microscopy. CO-PE6 showed a max. emission at 556 nm in chloroform and at 564 nm in solid film, when excited at 450 nm. The max. **electroluminescence** emission of the device indium-tin oxide (ITO)CO-PE6/Al is at 555 nm. The turn-on voltage of LEDs based on CO-PE6 and MEH-PPV is 6.5 and 8.5 V, resp. The electron mobility of CO-PE6 is higher than that of MEH-PPV based on the results of current-voltage and electrochem. behavior of both MEH-PPV and CO-PE6.

IT **697299-45-9P**
(synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))

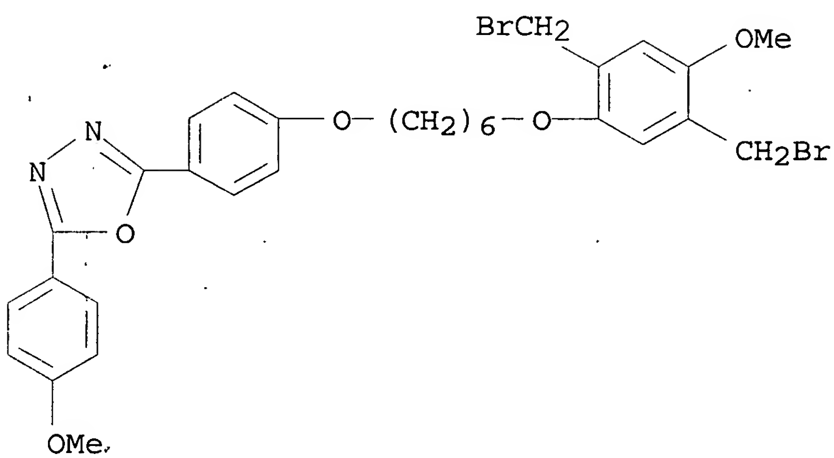
RN 697299-45-9 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[6-[2,5-bis(bromomethyl)-4-methoxyphenoxy]hexyl]oxy]phenyl]-5-(4-methoxyphenyl)-, polymer with 1,4-bis(bromomethyl)-2-[(2-ethylhexyl)oxy]-5-methoxybenzene (9CI)

(CA INDEX NAME)

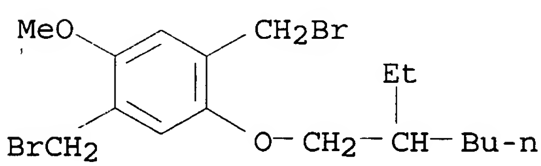
CM 1

CRN 697299-43-7
CMF C30 H32 Br2 N2 O5



CM 2

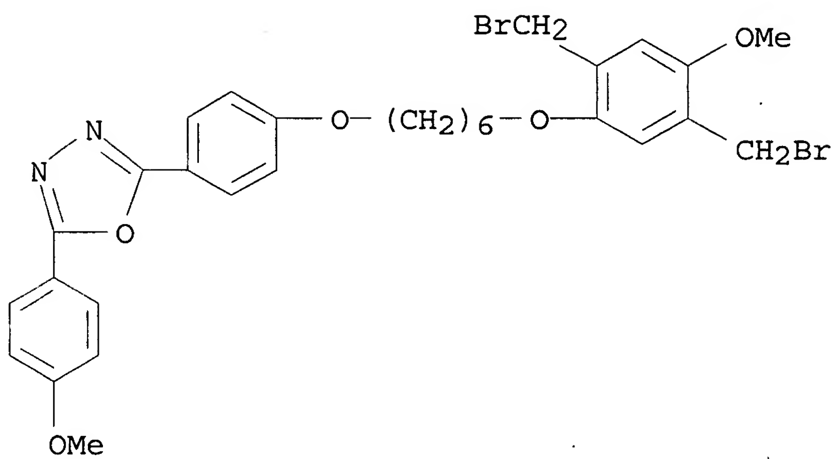
CRN 209625-37-6
CMF C17 H26 Br2 O2



IT **697299-44-8P**
(synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))
RN 697299-44-8 HCA
CN 1,3,4-Oxadiazole, 2-[4-[[6-[2,5-bis(bromomethyl)-4-methoxyphenoxy]hexyl]oxy]phenyl]-5-(4-methoxyphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 697299-43-7
CMF C30 H32 Br2 N2 O5



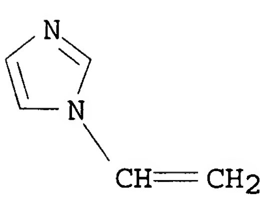
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73, 75
IT LUMO (molecular orbital)
(HOMO **gap**; synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))
IT HOMO (molecular orbital)
(LUMO **gap**; synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))
IT Electric current-potential relationship
Electroluminescent devices
Electron mobility
HOMO (molecular orbital)
LUMO (molecular orbital)
Liquid crystals, polymeric
Luminescence
Luminescence, **electroluminescence**
Redox potential
UV and visible spectra
(synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))
IT 7429-90-5, Aluminum, uses 50926-11-9, ITO
(**electrode** in **LED**; synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))
IT **697299-45-9P**
(synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))

IT **697299-44-8P** 697758-75-1P
(synthesis and characterization of poly(phenylenevinylene) derivs. contg. liq. cryst. oxadiazole groups and LEDs based on poly(phenylenevinylene))

L72 ANSWER 6 OF 32 HCA COPYRIGHT 2005 ACS on STN
140:393384 Procedure for the fabrication of a lithium secondary battery with a cathode active material containing lithium cobalt oxide as Li intercalating heavy metal oxide. Naarmann, Herbert; Kruger, Franz Josef; Theuerkauf, Stefan (Gaia Akkumulatorenwerke G.m.b.H., Germany; Dilo Trading AG). Ger. Offen. DE 10250747 A1 20040519, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2002-10250747 20021031.
AB A cathode active material contains Co-Li oxide, a polymer binder, a poly(vinyl) compd. and an aprotic solvent; an anode active mass contains a Li-intercalating carbon, a polymer binder, a poly(vinyl) compd., and an aprotic solvent; and a **separator** is placed between the **anode** and the **cathode.** According to the invention, this battery system is fabricated economically with a cathode, which is a mixt. of Li cobalt oxide with other Li intercalating metal oxides, whereby the necessary quantity of conducting salts for the entire battery system is brought in over the separator as intermediate layer.
IT **25232-42-2**, Polyvinylimidazole
(procedure for fabrication of lithium secondary battery with cathode active material contg. lithium cobalt oxide as Li intercalating heavy metal oxide)
RN 25232-42-2 HCA
CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1072-63-5
CMF C5 H6 N2



IC ICM H01M010-38
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1305-78-8, Calcia, uses 1309-48-4, Magnesium oxide (MgO), uses 1344-28-1, Alumina, uses 7782-42-5, Graphite, uses 9003-39-8,

Polyvinylpyrrolidone 9003-47-8, Polyvinylpyridine 9011-17-0, Kynar 2801 **25232-42-2**, Polyvinylimidazole 25233-30-1, Polyaniline 30604-81-0, Polypyrrole 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 49717-97-7D, 2-Propenoic acid, 2-methyl-, ion(1-) homopolymer, C4-20 alc. derivs
(procedure for fabrication of lithium secondary battery with cathode active material contg. lithium cobalt oxide as Li intercalating heavy metal oxide)

L72 ANSWER 7 OF 32 HCA COPYRIGHT 2005 ACS on STN
140:391583 Synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivatives with pendant oxadiazole or cyano groups. Mikroyannidis, John A.; Spiliopoulos, Ioakim K. (Chemical Technology Laboratory, Department of Chemistry, University of Patras, Patras, GR-26500, Greece). Journal of Polymer Science, Part A: Polymer Chemistry, 42(7), 1768-1778 (English) 2004. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..

AB Two novel poly(p-phenylene vinylene) polymers, which carried side substituents with cyano groups or 1,3,4-oxadiazole, were synthesized by Heck coupling. They consisted of alternating conjugated segments and nonconjugated aliph. **spacers.** The polymers had moderate mol. wts., were amorphous, and dissolved readily in THF and halogenated org. solvents. They were stable up to approx. 340 .degree.C in N2 and 290 .degree.C in air, and the anaerobic char yield was around 60% at 800 .degree.C. The polymer with cyano side groups **emitted** blue **light** in solns. and thin films with identical photoluminescence (PL) max. at 450 nm; this supported the idea that chain interactions were hindered even in the solid state. The PL max. of this polymer in thin films was blue-shifted upon annealing at 120 .degree.C, indicating a thermochromic effect as a result of conformational changes in the polymer backbone. The polymer contg. side substituents with oxadiazole rings **emitted** blue **light** in solns. with a PL max. at 474 nm and blue-greenish light in thin films with a PL max. at 511 nm. The PL quantum yields of the polymers in THF were 0.13-0.24.

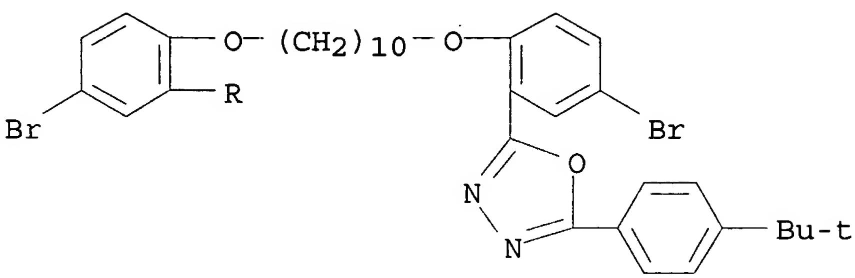
IT **688041-44-3P 688041-45-4P**
(synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole groups)

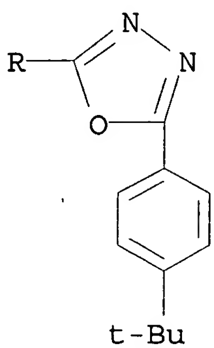
RN 688041-44-3 HCA

CN 1,3,4-Oxadiazole, 2,2'-[1,10-decanediylbis[oxy(5-bromo-2,1-phenylene)]]bis[5-[4-(1,1-dimethylethyl)phenyl]-, polymer with 1,4-bis(dodecyloxy)-2,5-diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

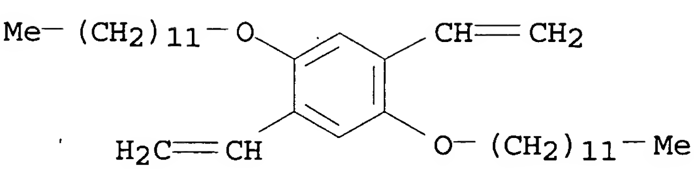
CRN 688041-43-2
CMF C46 H52 Br2 N4 O4





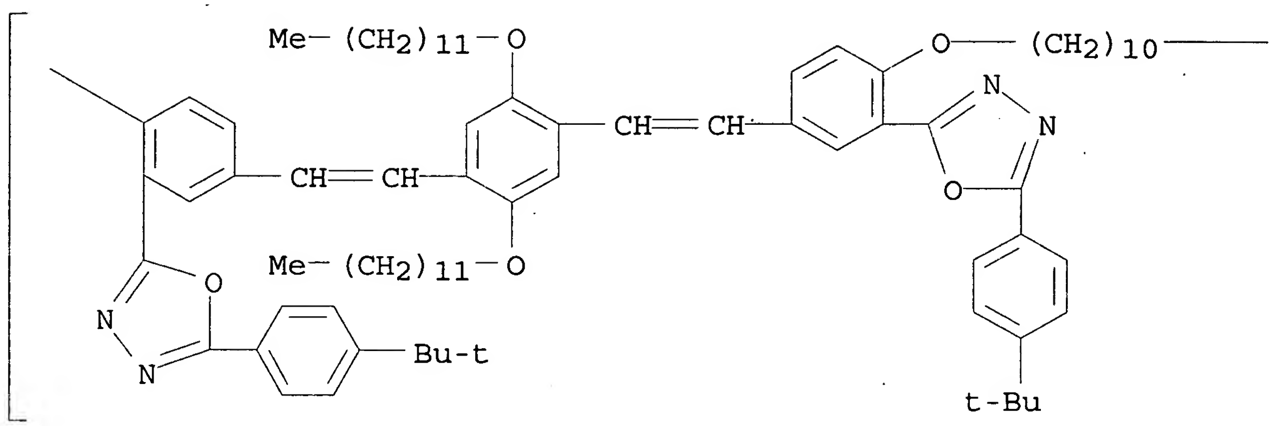
CM 2

CRN 209050-49-7
CMF C34 H58 O2

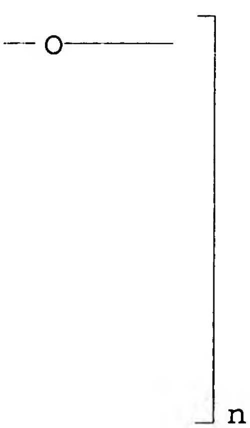


RN 688041-45-4 HCA
CN Poly[oxy-1,10-decanediyloxy[2-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-1,4-phenylene]-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl[3-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-1,4-phenylene]] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73

IT UV absorption
(UV-visible; synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole or cyano groups)

IT Band gap
(optical; synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole or cyano groups)

IT Annealing
Luminescence

Thermal stability
Thermochromism
(synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole or cyano groups)

IT Poly(arylenealkenylenes)
(synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole or cyano groups)

IT 688041-38-5P 688041-39-6P
(synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant cyano groups)

IT **688041-44-3P 688041-45-4P**
(synthesis and optical properties of novel blue-**light-emitting** poly(p-phenylene vinylene) derivs. with pendant oxadiazole groups)

L72 ANSWER 8 OF 32 HCA COPYRIGHT 2005 ACS on STN

140:304487 Structural effects of a **light emitting** copolymer having perylene moieties in the side chain on the **electroluminescent** characteristics. Lee, Chang Ho; Ryu, Seung Hoon; Jang, Hee Dong; Oh, Se Young (Department of Chemical Engineering, Sogang University, Seoul, 121-742, S. Korea). Materials Science & Engineering, C: Biomimetic and Supramolecular Systems, C24(1-2), 87-90 (English) 2004. CODEN: MSCEEE. ISSN: 0928-4931. Publisher: Elsevier Science B.V..

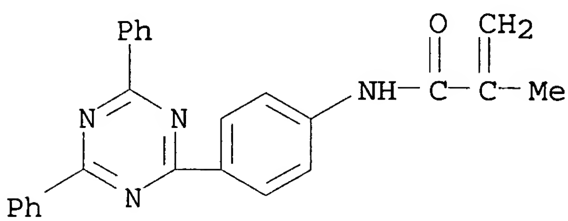
AB We have synthesized a novel side chain **light emitting** copolymer. The side chain **light emitting** copolymer has a perylene moiety as an emitting unit and Me methacrylate (MMA) as a **spacer** to decrease the concn. quenching of **light emitting** site in the polymer intrachain. These polymers are very sol. in most org. solvents such as monochlorobenzene, THF, chloroform and benzene. The single-layered **electroluminescent** (**EL**) device consisting of ITO/carrier transporting copolymer and **light emitting** copolymer/Al was manufd. The carrier transporting copolymer has triphenylamine moiety as a hole transporting unit and triazine moiety as an electron transporting unit in the polymer side chain. This device exhibits max. external quantum efficiency when the MMA contents of **light emitting** copolymer is 30 wt.%. In particular, the device **emits** more blue **light** as MMA contents increase.

IT **676437-03-9**
(carrier transporting materials; structural effects of **light emitting** copolymer having perylene moieties in side chain on **electroluminescent** characteristics)

RN 676437-03-9 HCA
CN 2-Propenamide, N-[4-(diphenylamino)phenyl]-2-methyl-, polymer with N-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)phenyl]-2-methyl-2-propenamide (9CI) (CA INDEX NAME)

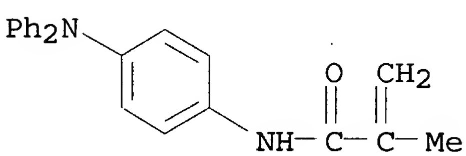
CM 1

CRN 676437-02-8
CMF C25 H20 N4 O



CM 2

CRN 163684-75-1
CMF C22 H20 N2 O



CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 38, 73
ST structural effect **light emitting** copolymer perylene; **electroluminescence** perylene polymer
IT Electric current-potential relationship
Electroluminescent devices
Luminescence
Luminescence, **electroluminescence**
UV and visible spectra
(structural effects of **light emitting** copolymer having perylene moieties in side chain on **electroluminescent** characteristics)
IT 7429-90-5, Aluminum, properties 50926-11-9, ITO
(**LED** contg.; structural effects of **light emitting** copolymer having perylene moieties in side chain on **electroluminescent** characteristics)
IT **676437-03-9**
(carrier transporting materials; structural effects of

light emitting copolymer having perylene
moieties in side chain on **electroluminescent**
characteristics)

IT 676437-05-1
(structural effects of **light emitting**
copolymer having perylene moieties in side chain on
electroluminescent characteristics)

L72 ANSWER 9 OF 32 HCA COPYRIGHT 2005 ACS on STN

140:271942 Nanocomposites useful for waveguides and light concentrators. Buretea, Mihai; Empedocles, Stephen; Niu, Chunming; Scher, Erik C. (Nanosys, Inc., USA). PCT Int. Appl. WO 2004022637 A2 20040318, 98 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US27844 20030904. PRIORITY: US 2002-PV408722 20020905.

AB This invention provides composite materials comprising nanostructures (e.g., nanowires, branched nanowires, nanotetrapods, nanocrystals, and nanoparticles). Methods and compns. for making such nanocomposites are also provided, as are articles comprising such composites. Waveguides and light concentrators comprising nanostructures (not necessarily as part of a nanocomposite) are addnl. features of the invention.

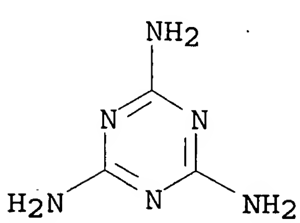
IT **9003-08-1**, Melamine resin
(matrix; nanocomposites useful for waveguides and light concentrators)

RN 9003-08-1 HCA

CN 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 108-78-1
CMF C3 H6 N6



CM 2

CRN 50-00-0
CMF C H2 O

$H_2C{=}O$

IC ICM C08K
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42, 73, 76
IT Band **gap**
Composites
Crosslinking agents
Electrodes
Electroluminescent devices
Films
Glues
Humectants
Lasers
Nanocomposites
Nanocrystals
Nanostructures
Nanowires
Optical amplifiers
Surfactants
Waveguides
(nanocomposites useful for waveguides and light concentrators)
IT 65-85-0, Benzoic acid, uses 88-99-3, Phthalic acid, uses
119-53-9, Benzoin 2085-33-8, Tris-(8-hydroxyquinoline)aluminum
9002-85-1, Polyvinylidene chloride 9002-86-2, Polyvinylchloride
9003-08-1, Melamine resin 9003-20-7, Polyvinyl acetate
9003-53-6, Polystyrene 9011-05-6, Urea resin 12385-08-9,
Dihydroxybenzene 25014-41-9, Polyacrylonitrile 25167-80-0,
Chlorophenol 27134-26-5, Chloroaniline 29733-85-5 65181-78-4,
N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-(1,1'-biphenyl)-4,4'-diamine
96638-49-2, Poly(phenylene vinylene) 104934-50-1,
Poly(3-hexylthiophene) 138184-36-8, Poly(2-methoxy-5-(2-ethylhexyloxy)-p-phenylenevinylene) 672907-75-4
(matrix; nanocomposites useful for waveguides and light concentrators)

L72 ANSWER 10 OF 32 HCA COPYRIGHT 2005 ACS on STN
140:184555 A miniature membrane-less biofuel cell operating at 0.36 V under physiological conditions. Mano, Nicolas; Heller, Adam (Department of Chemical Engineering and the Texas Materials

Institute, The University of Texas, Austin, 78712, USA).
Proceedings - Electrochemical Society, 2002-25(Micropower and Microdevices), 176-182 (English) 2003. CODEN: PESODO. ISSN: 0161-6374. Publisher: Electrochemical Society.

AB We report a miniature biofuel cell operating under physiol. conditions (20 mM phosphate, pH 7.4, 0.15 M chloride) at a power d. of 244 .mu.W.cm-2 at 0.36V (37.degree.C). Unlike earlier cells operating under physiol. conditions, the cell operates without a membrane **sepg.** its **anode** and **cathode** compartments. The cell is 180 times smaller than earlier reported biofuel cells operating under physiol. conditions while its power d. exceeds eight-fold that of the highest reported. The anodic electrocatalyst comprised the electrostatic adduct of glucose oxidase, (GOx), a polyanion at physiol. pH, and the polycationic redox polymer poly (vinyl pyridine) complexed with [Os (4,4'-dimethoxy-2,2'-bipyridine)2Cl]+/2+ (E.degree.' = -69 mV vs Ag/AgCl). The electrocatalyst of this cathode is the crosslinked electrostatic adduct of bilirubin oxidase from Myrothecium verrucaria, a polyanion at pH>4.1, and the polycationic redox copolymer of polyacrylamide and poly (N-vinylimidazole), complexed with [Os(dcl-bpy)2Cl]+/2+, where dcl-bpy = 4,4'-dichloro-2,2'-bipyridine (E.degree.' = 340 mV vs Ag/AgCl).

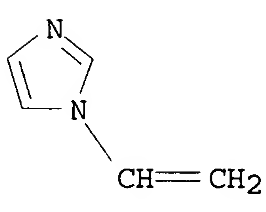
IT **35429-23-3D**, 2-Propenamide, polymer with 1-ethenyl-1H-imidazole, reaction products with Osmium dichlorobipyridine complexes **37356-92-6D**, reaction products with Osmium dichlorobipyridine complexes
(miniature membrane-less biofuel cell operating at 0.36 V under physiol. conditions)

RN 35429-23-3 HCA

CN 2-Propenamide, polymer with 1-ethenyl-1H-imidazole (9CI) (CA INDEX NAME)

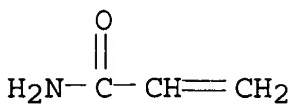
CM 1

CRN 1072-63-5
CMF C5 H6 N2



CM 2

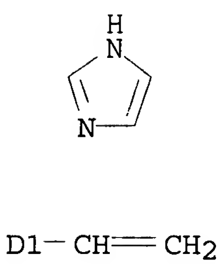
CRN 79-06-1
CMF C3 H5 N O



RN 37356-92-6 HCA
CN 2-Propenamide, polymer with ethenyl-1H-imidazole (9CI) (CA INDEX NAME)

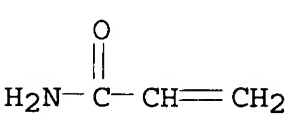
CM 1

CRN 29383-23-1
CMF C5 H6 N2
CCI IDS



CM 2

CRN 79-06-1
CMF C3 H5 N O



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 7, 9
IT 9003-47-8D, Polyvinylpyridine, adduct with glucose oxidase, complexes 9003-47-8D, reaction products with Osmium dimethoxybipyridine complexes **35429-23-3D**, 2-Propenamide, polymer with 1-ethenyl-1H-imidazole, reaction products with Osmium dichlorobipyridine complexes **37356-92-6D**, reaction products with Osmium dichlorobipyridine complexes 128471-97-6D, reaction producrs with acrylamide-N-vinylimidazole copolymer, adduct

with bilirubin oxidase adduct 146863-76-5D, adduct with polyvinylpyridine, complexes with glucose oxidase
(miniature membrane-less biofuel cell operating at 0.36 V under physiol. conditions)

L72 ANSWER 11 OF 32 HCA COPYRIGHT 2005 ACS on STN
139:246261 Synthesis, characterization, and electro-optical properties of a soluble conjugated polymer containing an oxadiazole unit in the main chain. Zhang, Su-Yang; Kong, Fan; Sun, Rong; Yuan, Ren-Kuan; Jiang, Xi-Qun; Yang, Chang-Zheng (Department of Polymer Science & Engineering, College of Chemistry & Chemical Engineering, Nanjing University, Nanjing, 210093, Peop. Rep. China). Journal of Applied Polymer Science, 89(10), 2618-2623 (English) 2003. CODEN: JAPNAB. ISSN: 0021-8995. Publisher: John Wiley & Sons, Inc..

AB A novel copolymer, poly{[2,5-di-phenylene-1,3,4-oxadiazole-vinylene]-[2-methoxy-5-(2-ethylhexyl-oxy)-1,4-phenylenevinylene]}(MEH-OPPV) contg. a high-electron-affinity unit of arom. oxadiazole in the main chain is synthesized through the Wittig condensation reaction. The obtained copolymer is easily sol. in conventional org. solvents. The structure of the copolymer was characterized by Fourier transform IR, 1H NMR, thermogravimetric anal. (TGA), differential scanning calorimetry (DSC), and UV-visible and photoluminescence spectroscopy. The TGA result indicates that the copolymer has very high thermal stability (stable up to 310.degree.C in nitrogen), while DSC investigation demonstrates that the glass transition temp. (Ts) is 143.degree.C, which might be a merit for the long-life operation of **light-emitting** devices. The absorption spectrum of film sample of the copolymer reveals two peaks at 310 and 370 nm, resp., and the edge absorption corresponds to a band **gap** of 2.46 eV. A single-layer **light-emitting** diode device ITO/MEH-OPPV/Al is successfully fabricated. The device emits visible yellowish-green light above the bias voltage of 4.0 V under ambient condition.

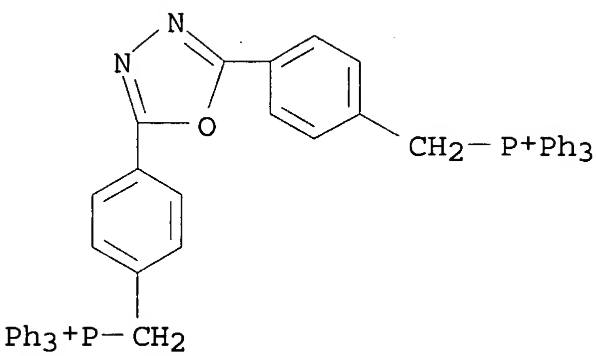
IT **591254-36-3P**
(sol. conjugated polymer contg. oxadiazole unit in main chain)

RN 591254-36-3 HCA

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dichloride, polymer with 1,4-bis(chloromethyl)-2-[(2-ethylhexyl)oxy]-5-methoxybenzene (9CI) (CA INDEX NAME)

CM 1

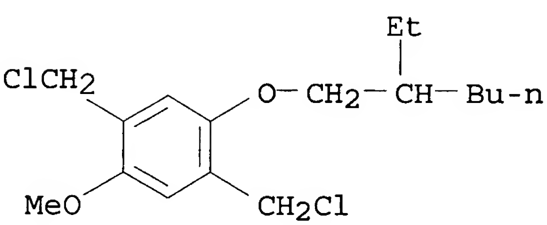
CRN 591254-35-2
CMF C52 H42 N2 O P2 . 2 Cl



●2 Cl⁻

CM 2

CRN 146370-52-7
CMF C17 H26 Cl2 O2



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73, 76
ST oxadiazole conjugated polymer LED prepn **electroluminescence** thermal degrdn thermal
IT Current density
Electroluminescent devices
Luminescence
Luminescence, **electroluminescence**
Thermal stability
(sol. conjugated polymer contg. oxadiazole unit in main chain)
IT 50926-11-9, ITO
(**electrode; LED** based on conjugated polymer contg. oxadiazole unit in main chain)
IT **591254-36-3P** 596087-08-0P
(sol. conjugated polymer contg. oxadiazole unit in main chain)

L72 ANSWER 12 OF 32 HCA
138:288035 Photoluminescence and excimer emission of functional groups in **light-emitting** polymers. Fehervari, Agota F.; Kagumba, Lawino C.; Hadjikyriacou, Savvas; Chen, Freeman; Gaudiana, Russell A. (Polaroid Corporation, Waltham, MA, 02154, USA). Journal of Applied Polymer Science, 87(10), 1634-1645 (English) 2003. CODEN: JAPNAB. ISSN: 0021-8995. Publisher: John Wiley & Sons, Inc..

AB Near-UV and blue-**light-emitting** polymers were synthesized with luminescent functional groups in the side chains or in the polymer main chain. The unsubstituted fluorophores, 2,5-diphenylfuran, 2-phenylbenzoxazole, and triphenylamine, do not form excimers in soln.; however, in the case of polymers, excimer emission was negligible only with 2-phenylbenzoxazole derivs. The monomers as well as the polymers, poly(2-(4-vinylphenyl)-benzoxazole), poly{N-(4-benzoxazol-2-yl-phenyl)-N'-[2-(methacryloyloxy)ethyl]urea}, and the polyurea of 2-(4-aminophenyl)-5-aminobenzoxazole with 1,5-diisocyanato-2-methylpentane, were strong blue emitters; photoluminescence shifted to longer wavelengths than that of 2-phenylbenzoxazole. **Light-emitting** polymers contg. 2,5-diphenylfuran derivs., including poly[2-(4-vinylphenyl)-5-phenylfuran], poly[2-(4-vinylphenyl)-5-(4-tert-butylphenyl)furan], and poly(N-[2-(methacryloyloxy)ethyl]-N'-{4-[5-(4-tert-butylphenyl)-2-furyl]phenyl}urea), particularly in solid films, exhibited a strong blue excimer emission. The emission characteristics of polymers with triphenylamine side chains were influenced by the mode of attachment of the luminescent group. A longer **spacer** group between the luminophore and the polymer main chain successfully minimized excimer emission in poly{N-[2-(methacryloyloxy)ethyl]-N'-[4-(N,N-diphenylamino)phenyl]urea}, showing near UV/violet photoluminescence. Polymers with a shorter connecting group, such as poly[4-(N,N-diphenylamino)benzyl acrylate], displayed blue excimer emission.

IT **407640-86-2P 503624-84-8P 503624-88-2P**
(prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

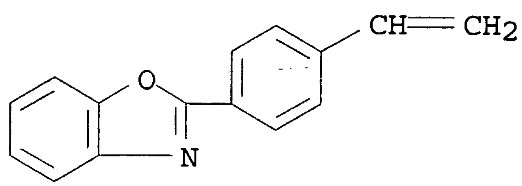
RN 407640-86-2 HCA

CN Benzoxazole, 2-(4-ethenylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 407640-85-1

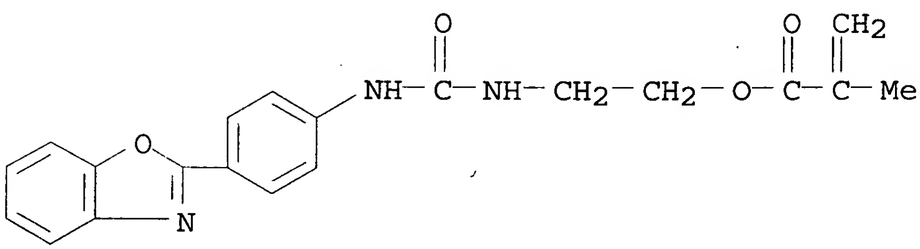
CMF C15 H11 N O



RN 503624-84-8 HCA
CN 2-Propenoic acid, 2-methyl-, 2-[[[[4-(2-benzoxazolyl)phenyl]amino]carbonyl]amino]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

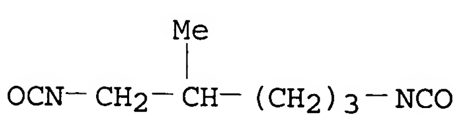
CRN 503624-83-7
CMF C20 H19 N3 O4



RN 503624-88-2 HCA
CN 5-Benzoxazolamine, 2-(4-aminophenyl)-, polymer with 1,5-diisocyanato-2-methylpentane (9CI) (CA INDEX NAME)

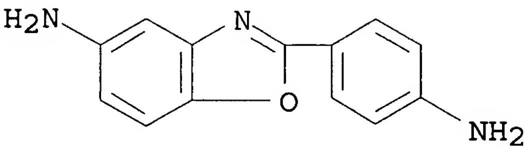
CM 1

CRN 34813-62-2
CMF C8 H12 N2 O2



CM 2

CRN 13676-47-6
CMF C13 H11 N3 O



CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73

ST **light emitting** polymer synthesis photoluminescence excimer emission

IT Polyureas
(polybenzoxazole-; prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT Polybenzoxazoles
(polyurea-; prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT Excimer
Functional groups
Luminescence
Luminescent substances
UV and visible spectra
(prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT 2350-01-8P 20934-81-0P, 2-(4-Aminophenyl)benzoxazole 25069-40-3P 34231-76-0P, 2-(4-Tert-Butyl)phenylfuran 503624-85-9P
(intermediate in monomer prepn.; prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT 13676-47-6P 222981-39-7P 407640-85-1P 503624-76-8P 503624-79-1P 503624-81-5P 503624-83-7P 503624-86-0P
(monomer; prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT 222981-40-0P **407640-86-2P** 503624-77-9P 503624-78-0P 503624-80-4P 503624-82-6P **503624-84-8P** 503624-87-1P **503624-88-2P** 503835-24-3P
(prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

IT 95-55-6, 2-Aminophenol 98-06-6, tert-Butylbenzene 110-00-9, Furan 137-09-7, 2,4-Diaminophenol dihydrochloride 150-13-0, 4-Aminobenzoic acid 814-68-6, Acryloyl chloride 2039-82-9, 4-Bromostyrene 4181-05-9 4316-57-8 5089-33-8,

4-Bromo-N,N-bis(trimethylsilyl)aniline 17113-33-6, 2-Phenylfuran
30674-80-7 196108-58-4
(reactant in monomer prepn.; prepn. of **light-emitting** polymers and photoluminescence and excimer emission of functional groups in polymers)

L72 ANSWER 13 OF 32 HCA COPYRIGHT 2005 ACS on STN
137:353440 Chemically tuning the optoelectronic properties of terphenylene-containing block copolymers. Zheng, Min; Ding, Liming; Karasz, Frank E. (Department of Polymer Science & Engineering, University of Massachusetts, Amherst, MA, 01003, USA). Macromolecular Chemistry and Physics, 203(10/11), 1337-1345 (English) 2002. CODEN: MCHPES. ISSN: 1022-1352. Publisher: Wiley-VCH Verlag GmbH.

AB A series of partially conjugated polymers contg. terphenylene linked by vinylene units were synthesized by Wittig condensation polymn. of the appropriate diphosphonium salts and the dialdehyde monomer. The m-Phenylene, p-phenylene, 1,3,4-oxadiazole-2,5-diyl-1,4-phenylene, 2,5-dimethoxy-1,4-phenylene and 9,10-anthrylene units were incorporated into the vinylene blocks to control the band **gap.** The effect of mol. architecture on optoelectronic and thermal properties of the polymers was studied. The optical emission of the copolymers can be tuned by changing the nature of the vinylene blocks to show violet, blue, green and green-yellow. Double-layer LEDs with ITO/PEDOT/polymer/Ca/Al layers were fabricated and, in parallel with the photoluminescence results, the change of emission color was also obsd. in the **electroluminescence** spectra.

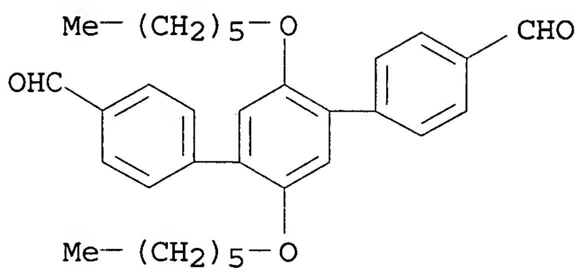
IT **474974-31-7P**, 2,5-Bis[[(p-triphenylphosphonio)methyl]phenyl]-1,3,4-oxadiazole dibromide-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer **474974-32-8P**, 2,5-Bis[[(p-triphenylphosphonio)methyl]phenyl]-1,3,4-oxadiazole dibromide-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer, SRU
(prepn. of monomers and Wittig polymn. in prepn. of terphenylene-vinylene copolymers and luminescence and photochromism and luminance of LEDs)

RN 474974-31-7 HCA

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 2',5'-bis(hexyloxy)[1,1':4',1''-terphenyl]-4,4''-dicarboxaldehyde (9CI) (CA INDEX NAME)

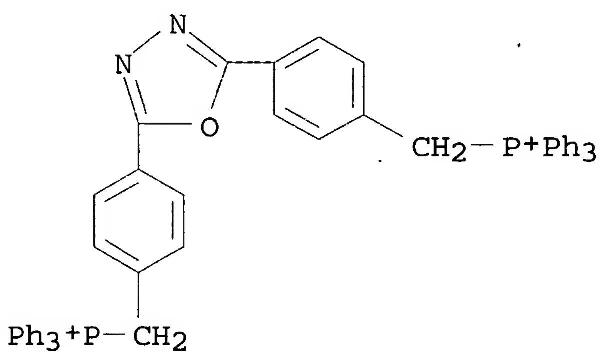
CM 1

CRN 474974-24-8
CMF C32 H38 O4



CM 2

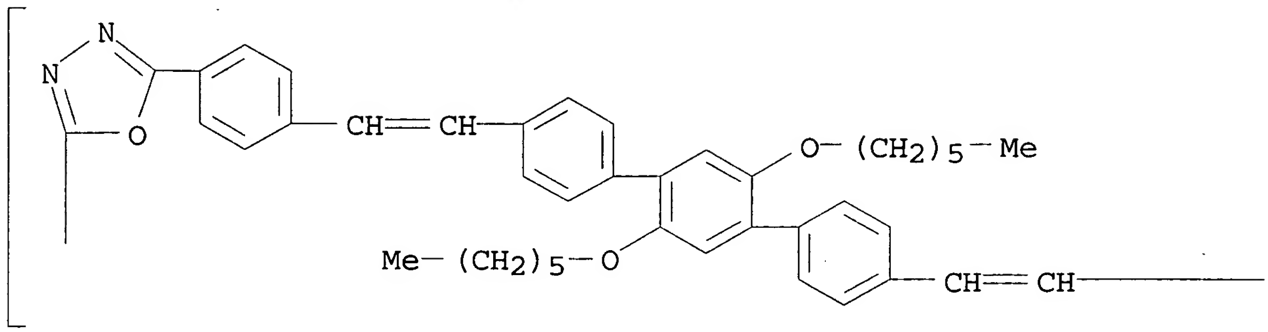
CRN 221615-56-1
CMF C52 H42 N2 O P2 . 2 Br



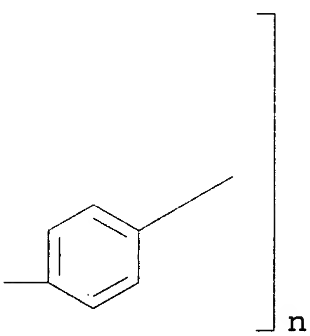
●2 Br^-

RN 474974-32-8 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(2',5'-bis(hexyloxy)[1,1':4',1''-terphenyl]-4,4''-diyl)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73, 76

ST phenylene vinylene conjugated block copolymer prepn Wittig condensation polymn; oxadiazole anthrylene polyphenylenevinylene prepn optoelectronic property; band **gap** control **electroluminescence** tuning terphenylene copolymer

IT **Electroluminescent** devices
(**light-emitting** diodes; prepn. of monomers and Wittig polymn. in prepn. of terphenylene-vinylene copolymers and luminescence and photochromism and luminance of LEDs)

IT Band **gap**
Glass transition temperature
Luminescence
Luminescence, **electroluminescence**
Optical absorption
Optoelectronics
Photochromism
Suzuki coupling reaction
Wittig reaction
(prepn. of monomers and Wittig polymn. in prepn. of

terphenylene-vinylene copolymers and luminescence and photochromism and luminance of LEDs)

IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses
(**electrode**; prepn. of monomers and Wittig polymn. in prepn. of terphenylene-vinylene copolymers and luminescence and photochromism and luminance of LEDs)

IT 474974-25-9P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-m-xylylenebis(triphenylphosphonium bromide) copolymer 474974-27-1P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-m-xylylenebis(triphenylphosphonium bromide) copolymer, SRU 474974-29-3P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-p-xylylenebis(triphenylphosphonium bromide) copolymer 474974-30-6P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-p-xylylenebis(triphenylphosphonium bromide) copolymer, SRU **474974-31-7P**, 2,5-Bis[[(p-triphenylphosphonio)methyl]phenyl]-1,3,4-oxadiazole dibromide-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer **474974-32-8P**, 2,5-Bis[[(p-triphenylphosphonio)methyl]phenyl]-1,3,4-oxadiazole dibromide-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer, SRU 474974-34-0P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-2,5-dimethoxy-p-xylylenebis(triphenylphosphonium chloride) copolymer 474974-36-2P, 2',5'-Dihexyloxy-p-terphenyl-4,4''-dialdehyde-2,5-dimethoxy-p-xylylenebis(triphenylphosphonium chloride) copolymer, SRU 474974-38-4P, 9,10-Anthrylenedimethylenebis(triphenylphosphonium chloride)-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer 474974-41-9P, 9,10-Anthrylenedimethylenebis(triphenylphosphonium chloride)-2',5'-dihexyloxy-p-terphenyl-4,4''-dialdehyde copolymer, SRU
(prepn. of monomers and Wittig polymn. in prepn. of terphenylene-vinylene copolymers and luminescence and photochromism and luminance of LEDs)

L72 ANSWER 14 OF 32 HCA COPYRIGHT 2005 ACS on STN

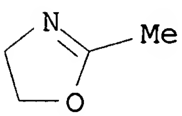
136:404303 Rechargeable batteries. Kawakami, Soichiro; Mishina, Shinya; Kobayashi, Naoya; Asao, Masaya (Canon Kabushiki Kaisha, Japan). U.S. Pat. Appl. Publ. US 2002064710 A1 20020530, 21 pp. (English). CODEN: USXXCO. APPLICATION: US 1995-453878 19950530. PRIORITY: JP 1994-167326 19940530.

AB A highly reliable rechargeable battery comprising an **anode**, a **separator**, a **cathode**, an electrolyte or an electrolyte soln., and a housing, is characterized in that the anode is structured to have a size which is greater than that of the cathode. The rechargeable battery provides an increased energy d. and has a prolonged charging and discharging cycle life, in which a dendrite causing a redn. in the battery performance, which is generated upon operating charging in the conventional rechargeable battery, is effectively prevented from generating or from growing in the case where it should be generated.

IT **26375-28-0**, Poly(2-methyl-2-oxazoline)
(rechargeable batteries)
RN 26375-28-0 HCA
CN Oxazole, 4,5-dihydro-2-methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1120-64-5
CMF C4 H7 N O



IC ICM H01M010-16
ICS H01M002-16; H01M004-48; H01M010-52; H01M010-40
INCL 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 67-63-0, Isopropyl alcohol, uses 108-94-1, Cyclohexanone, uses
9002-86-2, Polyvinyl chloride **26375-28-0**,
Poly(2-methyl-2-oxazoline)
(rechargeable batteries)

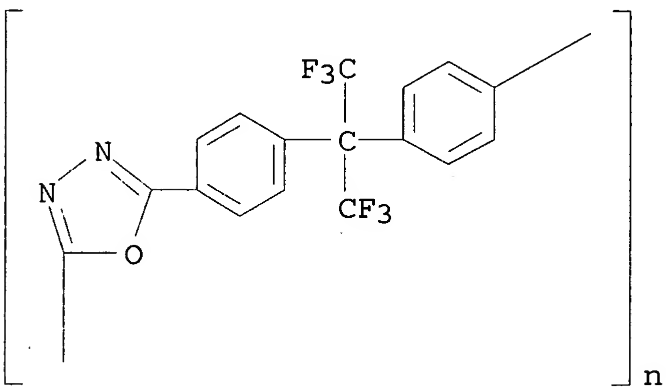
L72 ANSWER 15 OF 32 HCA COPYRIGHT 2005 ACS on STN
136:386762 The Photopolymerization and Cross-Linking of **Electroluminescent** Liquid Crystals Containing Methacrylate and Diene Photopolymerizable End Groups for Multilayer Organic **Light-Emitting** Diodes. Contoret, Adam E. A.; Farrar, Simon R.; O'Neill, Mary; Nicholls, J. Edward; Richards, Gary James; Kelly, Stephen Malcom; Hall, Alan William (Department of Physics, The University of Hull, Hull, HU6 7RX, UK). Chemistry of Materials, 14(4), 1477-1487 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.
AB **Light-emitting** liq. crystals incorporating two photopolymerizable end groups have been synthesized for implementation in multilayer org. **electroluminescent** devices. Series of diene as well as diallylamine and methacrylate moieties are used as the photoreactive groups attached via **spacers** to both ends of a fluorene-based chromophore. Nematic glasses are formed upon cooling from the liq. cryst. phase. UV radiation at room temp. is used to photopolymerize and crosslink the reactive units, resulting in the formation of insol. nematic polymer networks. The quantum efficiency of photoluminescence from the fluorene-based chromophore is increased by crosslinking of the diene reactive end groups. Photopolymn. occurs more rapidly with methacrylate end groups, but the chromophore is somewhat degraded by the incident radiation. In materials incorporating the

photopolymerizable 1,4-pentadien-3-yl group, the formation of the polymer network enhances the **electroluminescence.** An electron-transporting polymer contg. an oxadiazole ring is deposited on top of the insol. network. **Electroluminescence** is obtained with an unchanged spectrum.

IT **26916-42-7**
(multilayer org. **light-emitting** diodes contg. polymers prepd. from **electroluminescent** liq. crystals having methacrylate and diene photopolymerizable end groups and)

RN 26916-42-7 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73, 75

ST methacrylate diene photopolymn **electroluminescent** liq crystal

IT Electric current-potential relationship
Electroluminescent devices
Luminescence
Luminescence, electroluminescence
(multilayer **org. light-emitting** diodes contg. polymers prepd. from **electroluminescent** liq. crystals having methacrylate and diene photopolymerizable end groups)

IT Polymerization
(photopolymn.; of **electroluminescent** liq. crystals having methacrylate and diene photopolymerizable end groups)

IT Liquid crystals
(prepn. and photopolymn. of **electroluminescent** liq. crystals having methacrylate and diene photopolymerizable end groups)

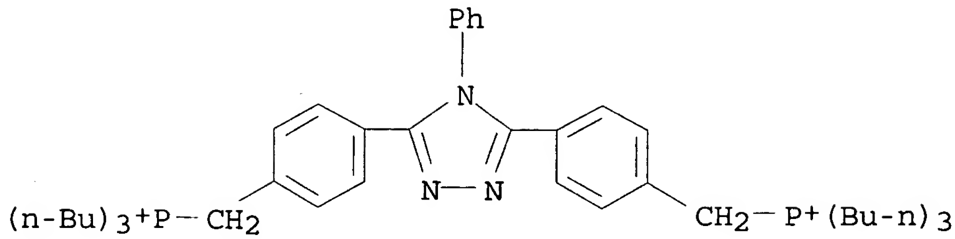
IT **26916-42-7**
(multilayer org. **light-emitting** diodes contg. polymers prepd. from **electroluminescent** liq. crystals

having methacrylate and diene photopolymerizable end groups and)
IT 387334-17-0P 387334-19-2P 426820-36-2P 426820-37-3P
426820-38-4P
(photopolymn. and crosslinking of **electroluminescent** liq. crystals contg. methacrylate and diene photopolymerizable end groups for multilayer org. **light-emitting** diodes)

L72 ANSWER 16 OF 32 HCA COPYRIGHT 2005 ACS on STN
136:118811 Synthesis and characterization of novel bipolar PPV-based copolymer containing triazole and carbazole units. Liu, Ze; Wang, Li-Xiang; Jing, Xia-Bin; Wang, Fo-Song (The State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China). Chinese Journal of Polymer Science, 19(6), 615-621 (English) 2001. CODEN: CJPSEG. ISSN: 0256-7679. Publisher: Springer-Verlag.
AB Two new blue **light-emitting** PPV-based conjugated copolymers contg. both an electron-withdrawing unit (triazole-TAZ) and electron-rich moieties (carbazole-CAR and bicarbazole-BCAR) were prepd. by Wittig condensation polymn. between the triazole diphosphonium salt and the corresponding dialdehyde monomers. Their structures and properties were characterized by FT-IR, TGA, DSC, UV-Vis, PL spectroscopy and electrochem. measurements. The resulting copolymers are sol. in common org. solvents and thermally stable with a Tg of 147.degree.C for TAZ-CAR-PPV and of 157.degree.C for TAZ-BCAR-PPV. The max. photoluminescence wavelengths of TAZ-CAR-PPV and TAZ-BCAR-PPV film appear at 460 nm and 480 nm, resp. Cyclic voltammetry measurement demonstrates that TAZ-BCAR-PPV has good electrochem. reversibility, while TAZ-CAR-PPV exhibits the irreversible redox process. The triazole unit was found to be an effective .pi.-conjugation interrupter and can play the rigid **spacer** role in detg. the emission color of the resulting copolymer.
IT **389847-65-8P 389847-66-9P 389847-67-0P**
389847-68-1P
(synthesis and characterization of bipolar p-phenylenevinylene-based copolymer contg. triazole and carbazole units)
RN 389847-65-8 HCA
CN Phosphonium, [(4-phenyl-4H-1,2,4-triazole-2,5-diyl)bis(4,1-phenylenemethylene)]bis[tributyl-, dichloride, polymer with 9-octyl-9H-carbazole-3,6-dicarboxaldehyde (9CI) (CA INDEX NAME)

CM 1

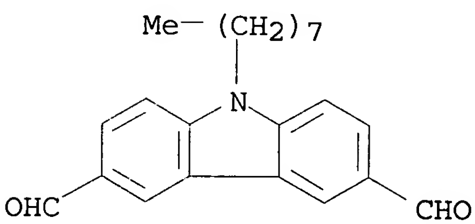
CRN 389847-64-7
CMF C46 H71 N3 P2 . 2 Cl



●2 Cl⁻

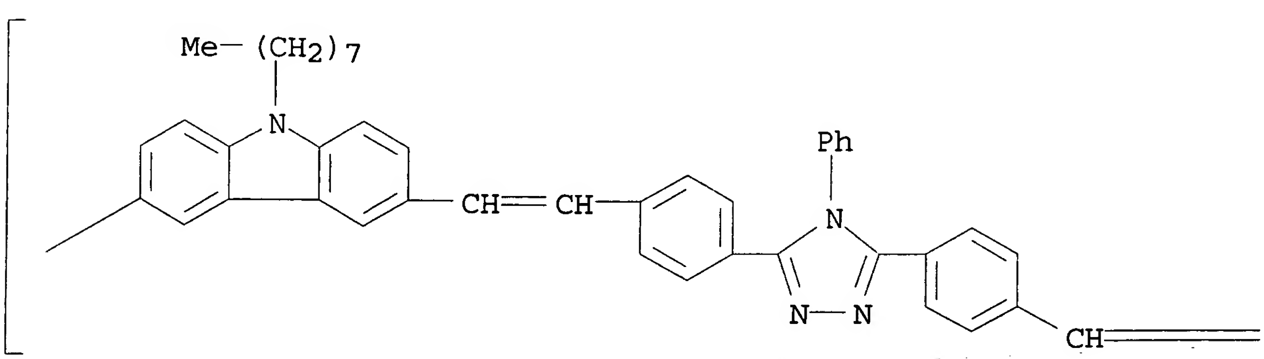
CM 2

CRN 319018-43-4
CMF C22 H25 N O2

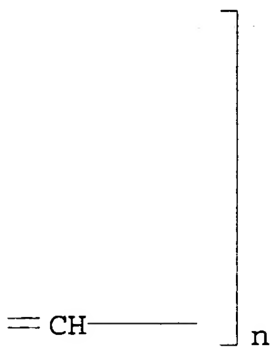


RN 389847-66-9 HCA
CN Poly[(9-octyl-9H-carbazole-3,6-diyl)-1,2-ethenediyl-1,4-phenylene(4-phenyl-4H-1,2,4-triazole-2,5-diyl)-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



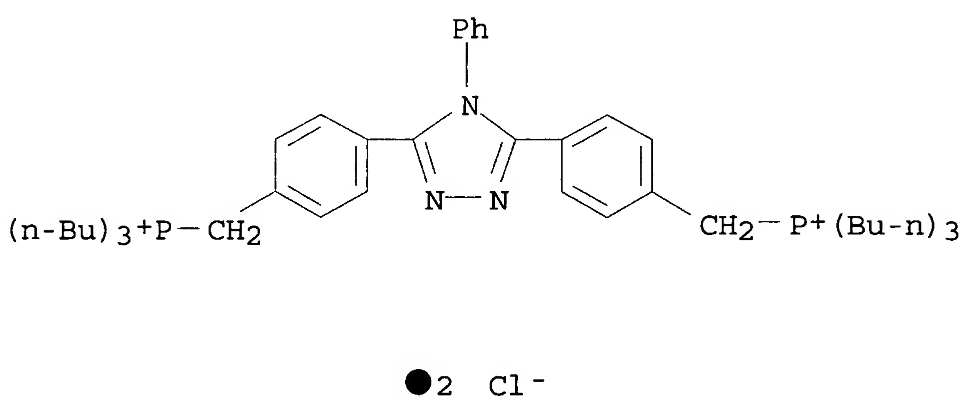
PAGE 1-B



RN 389847-67-0 HCA
CN Phosphonium, [(4-phenyl-4H-1,2,4-triazole-2,5-diyl)bis(4,1-phenylenemethylene)]bis[tributyl-, dichloride, polymer with 9,9'-dioctyl[3,3'-bi-9H-carbazole]-6,6'-dicarboxaldehyde (9CI) (CA INDEX NAME)

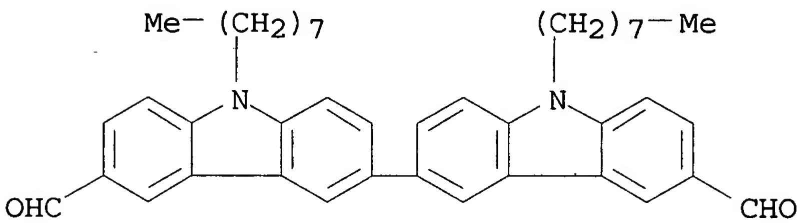
CM 1

CRN 389847-64-7
CMF C46 H71 N3 P2 . 2 Cl



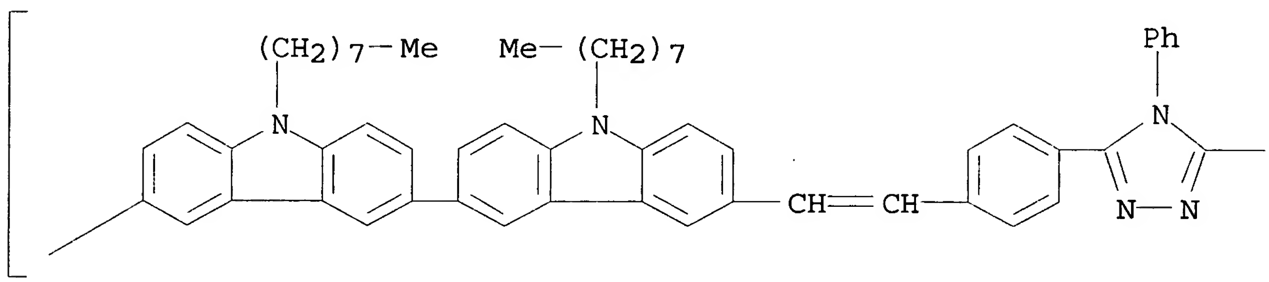
CM 2

CRN 193017-43-5
CMF C42 H48 N2 O2

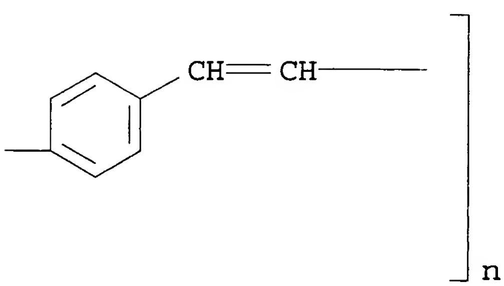


RN 389847-68-1 HCA
CN Poly[(9,9'-dioctyl[3,3'-bi-9H-carbazole]-6,6'-diyl)-1,2-ethenediyl-1,4-phenylene(4-phenyl-4H-1,2,4-triazole-2,5-diyl)-1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73
IT **389847-65-8P 389847-66-9P 389847-67-0P**
389847-68-1P
(synthesis and characterization of bipolar p-phenylenevinylene-based copolymer contg. triazole and carbazole units)

L72 ANSWER 17 OF 32 HCA COPYRIGHT 2005 ACS on STN

135:358437 Photoluminescence and **electroluminescence** of blue-green **light emitting** oxadiazole-containing polymers. Zheng, Min; Ding, Liming; Guerel, E. Elif; Lahti, Paul M.; Karasz, Frank E. (Department of Polymer Science & Engineering and Department of Chemistry, University of Massachusetts, Amherst, MA, 01003, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 42(2), 280-281 (English) 2001. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

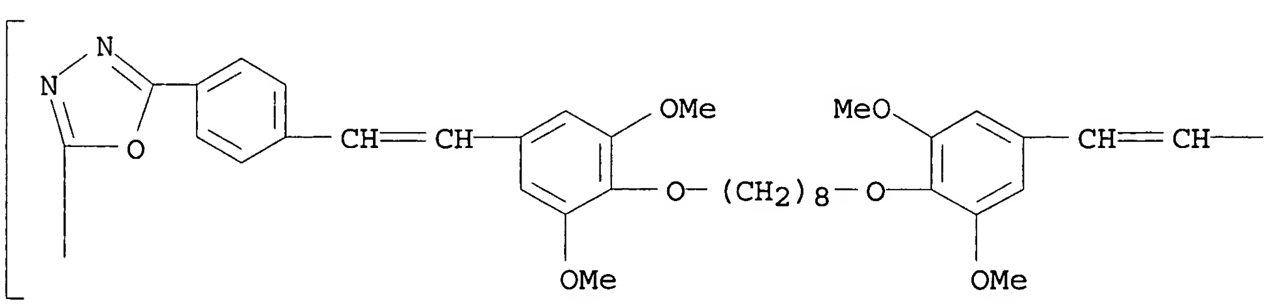
AB A series of segmented copolymers contg. oxadiazole groups in the conjugated main chain were synthesized with the objective of raising the electron transport ability. The copolymers consist of alternating blocks of rigid chromophores contg. oxadiazole units together with flexible **spacer** segments and were prepd. via Wittig condensation followed by isomerization. The effects of chromophore substituents on the optical properties of the copolymers were studied. The emission spectra of the polymers in different solvents were studied. A strong solvatochromic effect as function of solvent polarity was obsd. in Oxa-I and Oxa-III, indicating intramol. charge transfer within the excited state. The **electroluminescence** characteristics of the polymers were also studied, toward use in single layer LEDs.

IT **347895-40-3P 347895-42-5P 347895-44-7P 372968-14-4P 372968-16-6P 372968-19-9P**
(chromophore substituent effects on luminescence of blue-green **light emitting** oxadiazole-polyphenylenevinylene conjugated polymers)

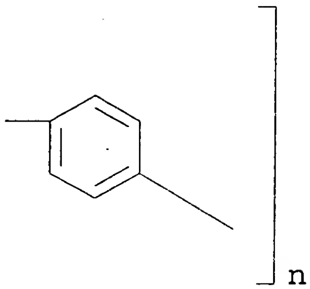
RN 347895-40-3 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3,5-dimethoxy-1,4-phenylene)oxy-1,8-octanediyloxy(2,6-dimethoxy-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

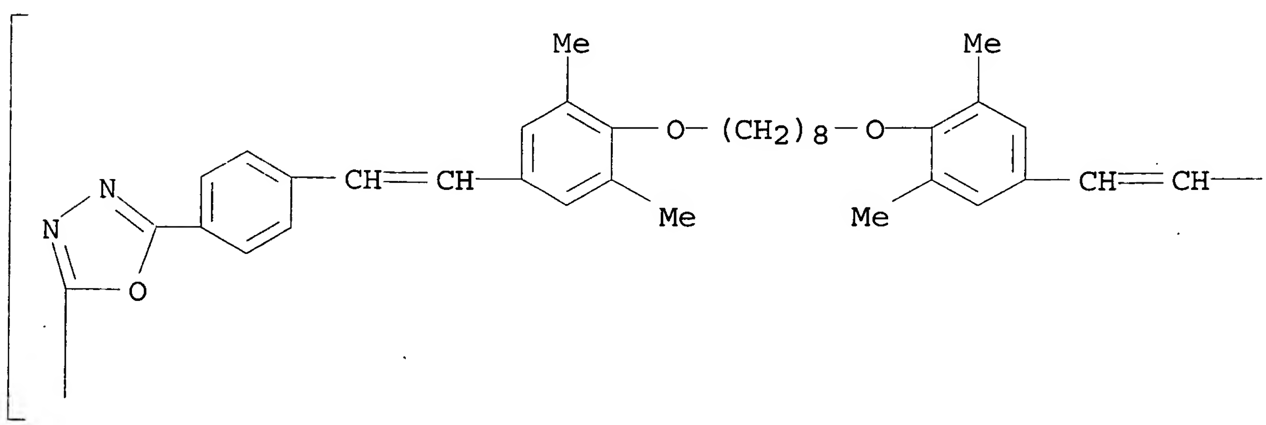


PAGE 1-B

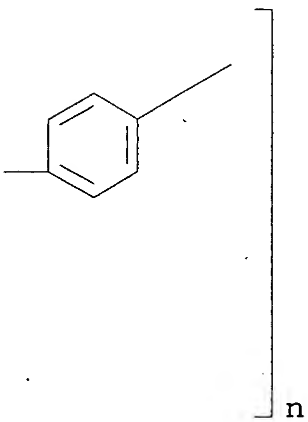


RN 347895-42-5 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3,5-dimethyl-1,4-phenylene)oxy-1,8-octanediyloxy(2,6-dimethyl-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

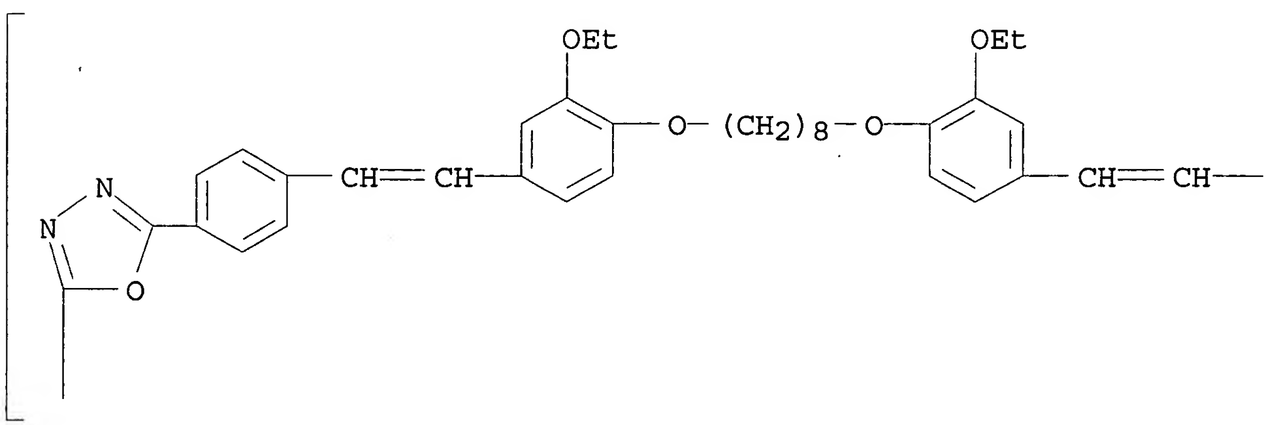


PAGE 1-B

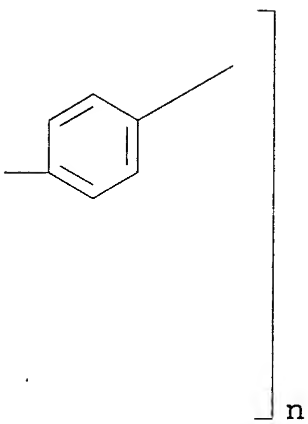


RN 347895-44-7 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3-ethoxy-1,4-phenylene)oxy-1,8-octanediyloxy(2-ethoxy-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



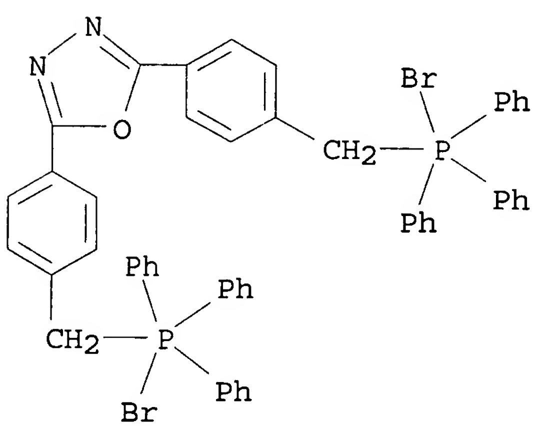
PAGE 1-B



RN 372968-14-4 HCA
CN Benzaldehyde, 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethoxy-, polymer with 2,5-bis[4-[(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

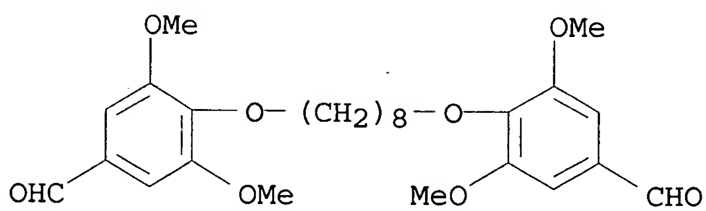
CM 1

CRN 372968-13-3
CMF C52 H42 Br2 N2 O P2



CM 2

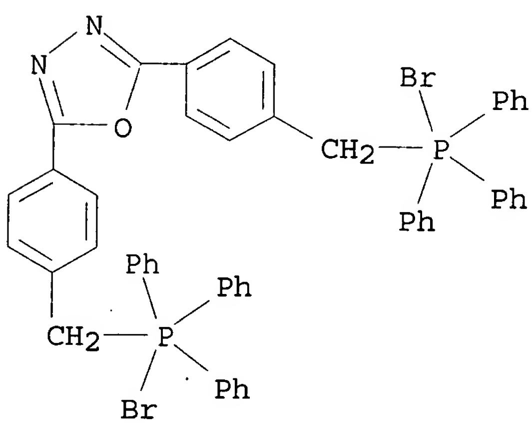
CRN 146119-99-5
CMF C26 H34 O8



RN 372968-16-6 HCA
CN Benzaldehyde, 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethyl-, polymer with 2,5-bis[4-[(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

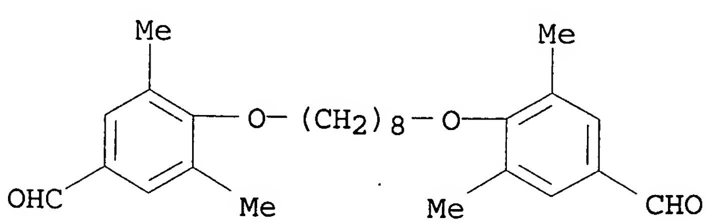
CM 1

CRN 372968-13-3
CMF C52 H42 Br2 N2 O P2



CM 2

CRN 297155-61-4
CMF C26 H34 O4

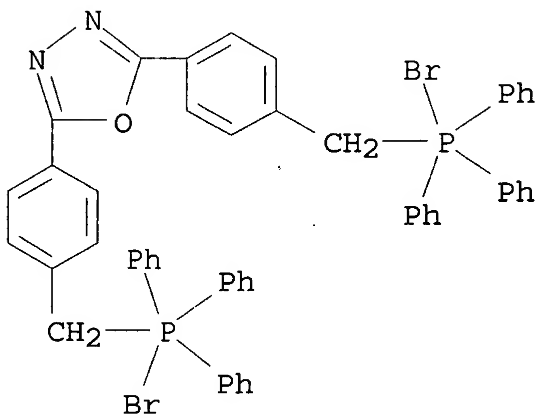


RN 372968-19-9 HCA

CN Benzaldehyde, 4,4'-[1,8-octanediylbis(oxy)]bis[3-ethoxy-, polymer with 2,5-bis[4-[(bromotriphenylphosphoranyl)methyl]phenyl]-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

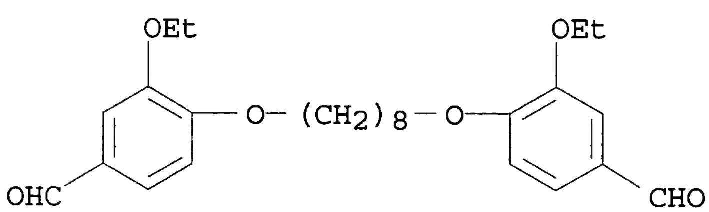
CM 1

CRN 372968-13-3
CMF C52 H42 Br2 N2 O P2



CM 2

CRN 297155-64-7
CMF C26 H34 O6



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35, 73
ST oxadiazole segmented conjugated polymer prepn Wittig condensation; phenylenevinylene oxadiazole copolymer luminescence charge transfer; solvatochromic effect blue green **light emitting** oxadiazole copolymer
IT Charge transfer interaction
Electron transport
Excited electronic state
Isomerization
Luminescence

Luminescence, **electroluminescence**
Solvatochromism
Wittig reaction
(chromophore substituent effects on luminescence of blue-green **light emitting** oxadiazole-polyphenylenevinylene conjugated polymers)

IT Polymers, properties
(conjugated; chromophore substituent effects on luminescence of blue-green **light emitting** oxadiazole-polyphenylenevinylene conjugated polymers)

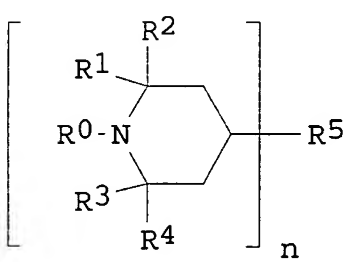
IT Poly(arylenealkenylenes)
(oxadiazole-contg.; chromophore substituent effects on luminescence of blue-green **light emitting** oxadiazole-polyphenylenevinylene conjugated polymers)

IT **347895-40-3P 347895-42-5P 347895-44-7P 372968-14-4P 372968-16-6P 372968-19-9P**
(chromophore substituent effects on luminescence of blue-green **light emitting** oxadiazole-polyphenylenevinylene conjugated polymers)

L72 ANSWER 18 OF 32 HCA COPYRIGHT 2005 ACS on STN

135:125019 Secondary nonaqueous electrolyte batteries. Yamada, Manabu; Kubota, Naohiro (Denso Co., Ltd., Japan; Asahi Denka Kogyo K. K.). Jpn. Kokai Tokkyo Koho JP 2001210314 A2 20010803, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-22246 20000131.

GI



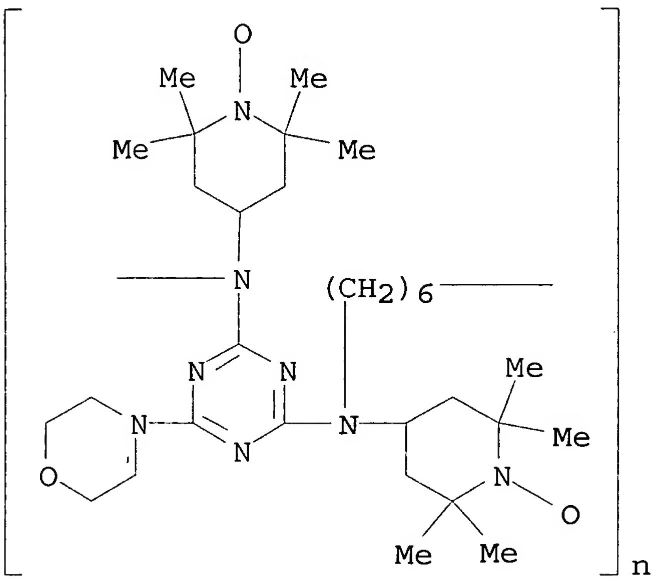
I

AB The batteries use **cathodes**, **anodes**, and/or **separators** contg. a piperidine deriv. I, where R0 = O free radical, HO, alkoxy, or polymer group connected by ether group; R1-4 = C1-4 alkyl groups, R5 = H, HO, or an n valent org. group, n = integer 1-100.

IT **351182-54-2**
(secondary lithium batteries contg. piperidine deriv. additives in electrodes and/or separators)

RN 351182-54-2 HCA

CN Poly[[(2,2,6,6-tetramethyl-1-oxy-4-piperidinyl)imino][6-(4-morpholinyl)-1,3,5-triazine-2,4-diyl][(2,2,6,6-tetramethyl-1-oxy-4-piperidinyl)imino]-1,6-hexanediyl] (9CI) (CA INDEX NAME)



IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 2226-96-2D, reaction products with EPDM rubber 2516-92-9
6599-87-7D, reaction products with EPDM rubber 66569-11-7
68393-07-7 122586-52-1 122586-96-3 351182-52-0 351182-53-1
351182-54-2
(secondary lithium batteries contg. piperidine deriv. additives in electrodes and/or separators)

L72 ANSWER 19 OF 32 HCA COPYRIGHT 2005 ACS on STN
135:77439 Oxadiazole Containing Conjugated-Nonconjugated Blue and Blue-Green **Light Emitting** Copolymers. Zheng, Min; Ding, Liming; Guerel, E. Elif; Lahti, Paul M.; Karasz, Frank E. (Department of Polymer Science & Engineering and Department of Chemistry, University of Massachusetts, Amherst, MA, 01003, USA). Macromolecules, 34(12), 4124-4129 (English) 2001. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.
AB A series of segmented copolymers contg. oxadiazole groups in the conjugated main chain have been synthesized with the objective of raising the electron transport ability. The present copolymers consist of alternating blocks of rigid chromophores contg. oxadiazole units together with flexible **spacer** segments.
The effects of chromophore substituents on the optical properties of the copolymers were investigated. Strong solvatochromic effects

were obsd., indicating intramol. charge transfer in the excited states. The copolymers not only were used as blue-green **electroluminescent** materials but also were effective as electron transport/hole blocking layers in polymer **light emitting** diode architectures as a result of the introduction of electron transporting unit oxadiazole. The quantum efficiency of a single-layer device using PPV (polyphenylenevinylene) was greatly enhanced with the use of a thin film of the oxadiazole copolymer serving as an ETL (electron transporting layer). At 6.8 V, a brightness of 2400 cd/m2 was achieved with an external quantum efficiency of 0.094%.

IT **347895-37-8P 347895-38-9P 347895-39-0P 347895-40-3P 347895-42-5P 347895-44-7P**
(prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

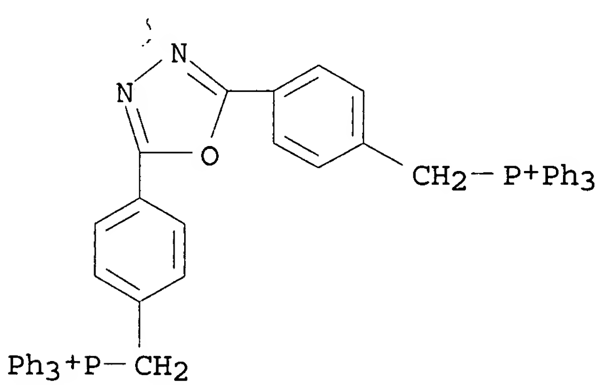
RN 347895-37-8 HCA

CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethoxybenzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 221615-56-1

CMF C52 H42 N2 O P2 . 2 Br

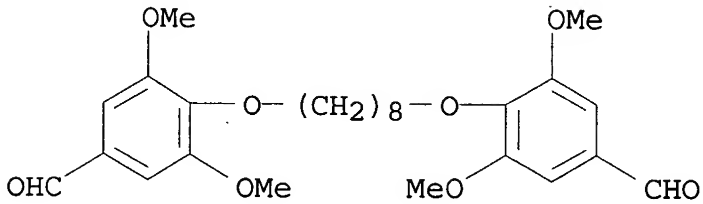


●2 Br⁻

CM 2

CRN 146119-99-5

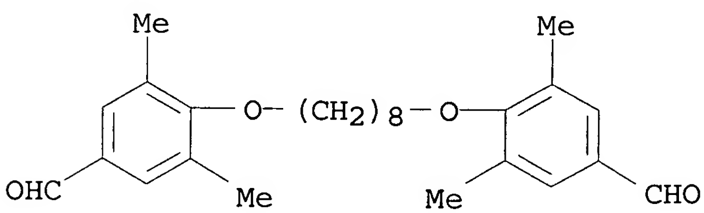
CMF C26 H34 O8



RN 347895-38-9 HCA
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediylbis(oxy)]bis[3,5-dimethylbenzaldehyde] (9CI) (CA INDEX NAME)

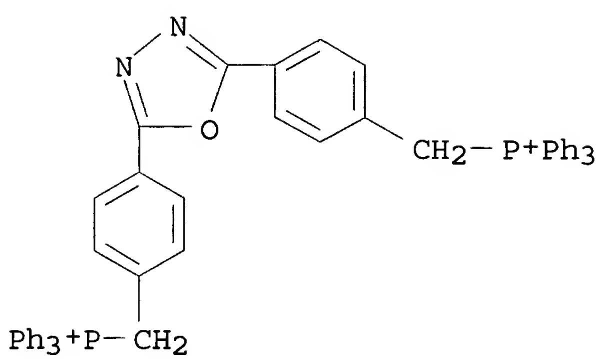
CM 1

CRN 297155-61-4
CMF C26 H34 O4



CM 2

CRN 221615-56-1
CMF C52 H42 N2 O P2 . 2 Br

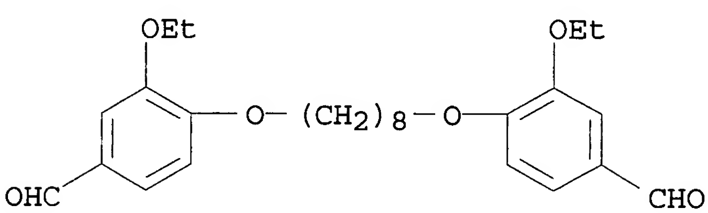


●2 Br⁻

RN 347895-39-0 HCA
CN Phosphonium, [1,3,4-oxadiazole-2,5-diylbis(4,1-phenylenemethylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[1,8-octanediylbis(oxy)]bis[3-ethoxybenzaldehyde] (9CI) (CA INDEX NAME)

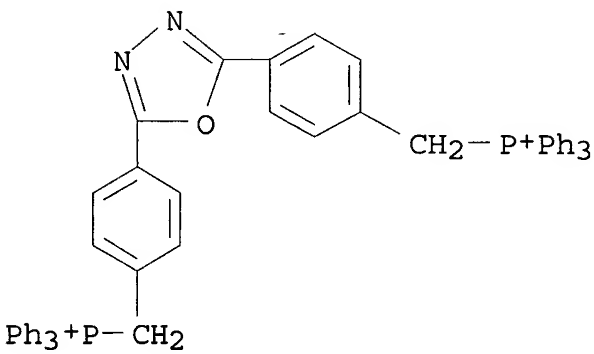
CM 1

CRN 297155-64-7
CMF C26 H34 O6



CM 2

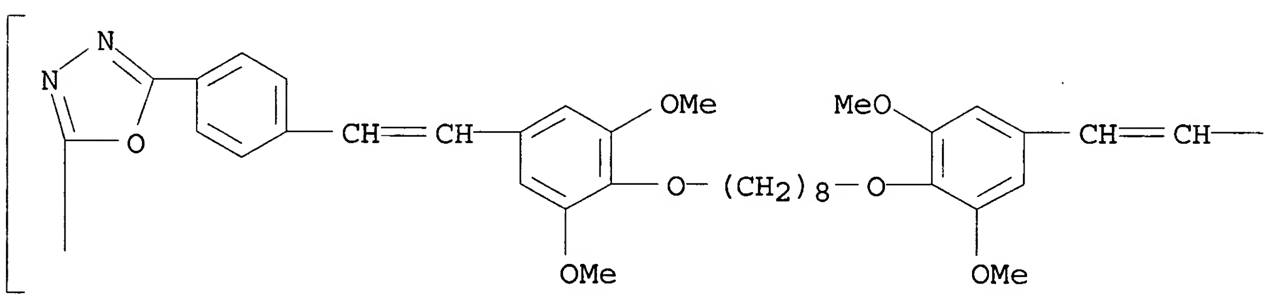
CRN 221615-56-1
CMF C52 H42 N2 O P2 . 2 Br



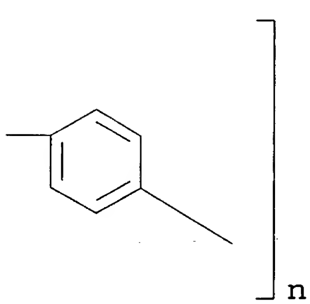
●2 Br^-

RN 347895-40-3 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3,5-dimethoxy-1,4-phenylene)oxy-1,8-octanediyloxy(2,6-dimethoxy-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

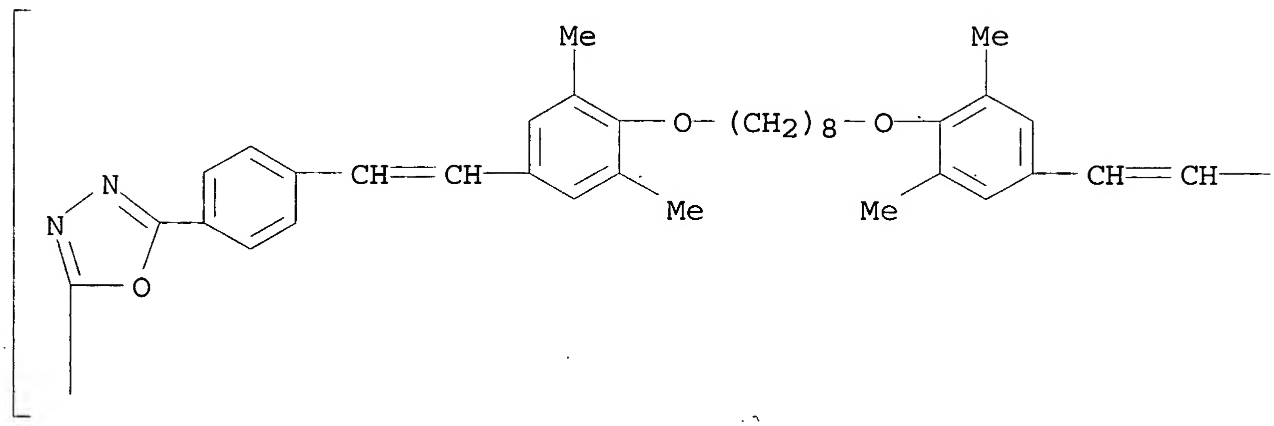


PAGE 1-B

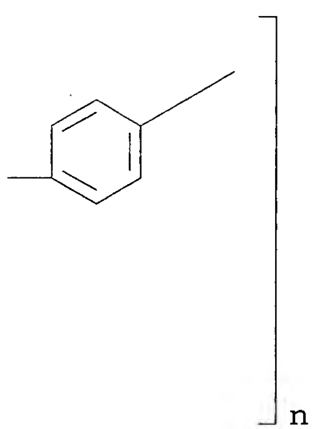


RN 347895-42-5 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3,5-dimethyl-1,4-phenylene)oxy-1,8-octanediyloxy(2,6-dimethyl-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

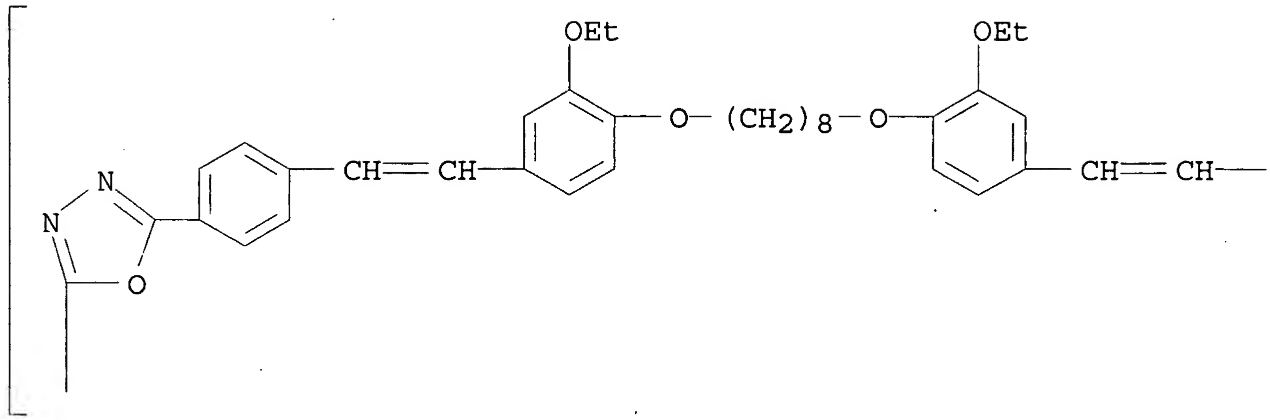


PAGE 1-B

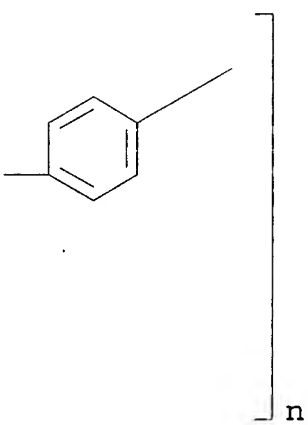


RN 347895-44-7 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,2-ethenediyl(3-ethoxy-1,4-phenylene)oxy-1,8-octanediyloxy(2-ethoxy-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35, 73

IT Phosphors
(**electroluminescent**; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT Solvent effect
(on optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT Polyoxadiazoles
(poly(arylenealkenylene)-, polyether-; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and

blue-green **light emitting** copolymers)

IT Polyoxadiazoles
(polyether-, poly(arylenealkenylene)-; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT Polyethers, properties
(polyoxadiazole-, poly(arylenealkenylene)-; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT Poly(arylenealkenylenes)
(polyoxadiazole-, polyether-; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT Brightening
Fluorescence
Glass transition temperature
Luminescence
Luminescence, **electroluminescence**
Molecular weight
Optical properties
Photoinduced electron transfer
Polymerization
(prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT 221615-56-1P
(intermediate; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT 297155-61-4P 297155-64-7P
(monomer; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT **347895-37-8P 347895-38-9P 347895-39-0P**
347895-40-3P 347895-42-5P 347895-44-7P
(prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT 67-66-3, Chloroform, uses 75-05-8, Acetonitrile, uses 108-88-3, Toluene, uses 110-82-7, Cyclohexane, uses
(solvent effect on optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light emitting** copolymers)

IT 121-32-4, 3-Ethoxy-4-hydroxybenzaldehyde 2233-18-3, 3,5-Dimethyl-4-hydroxybenzaldehyde 4549-32-0, 1,8-Dibromooctane 58370-39-1
(starting material; prepn. and optical properties of oxadiazole contg. conjugated-nonconjugated blue and blue-green **light**

emitting copolymers)

L72 ANSWER 20 OF 32 HCA COPYRIGHT 2005 ACS on STN
134:367310 Synthesis of polymers with isolated thiophene-arylidene-thiophene chromophores for enhanced and specific electron/hole transport. Silcoff, Elliad R.; Asadi, Ahmed S. I.; Sheradsky, Tuvia (Department of Organic Chemistry, Hebrew University, Jerusalem, 91904, Israel). Journal of Polymer Science, Part A: Polymer Chemistry, 39(6), 872-879 (English) 2001. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..

AB The synthesis of 9 new polymers intended for future use in **light-emitting** diodes is described. The polymers consist of alternating units of thiophene-arylidene-thiophene chromophores and satd. Si-contg. **spacers.** The arylidene moieties include benzene-1,4-, 2,5-dimethoxybenzene-1,4-, naphthalene-1,4-, anthracene-9,10-, pyridine-2,5-, pyridine-2,6-, N-methylcarbazole-3,6-, 1,3,4-oxadiazole-2,5-, and 4,4'-dimethyl-2,2'-bithiazole-5,5'-. The syntheses involved dibromination of the central arene followed by Suzuki or Kumada cross-coupling reactions with 2 thiophene units. Subsequent dilithiation and reaction with dihalosilylalkanes provided the polymers. Their optical properties, including UV-visible absorption and emission in soln., were comparable to those of the parent monomer units, and they possessed the phys. characteristics of macromols.

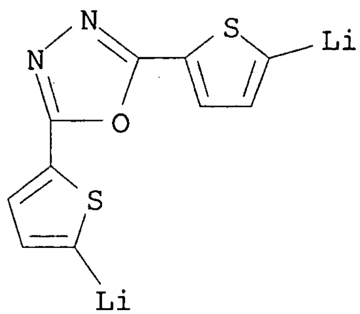
IT **340015-74-9P 340015-76-1P 340015-83-0P**
340015-84-1P
(synthesis of polymers with isolated thiophene-arylidene-thiophene chromophores for enhanced and specific electron/hole transport)

RN 340015-74-9 HCA

CN Lithium, [.mu.-(1,3,4-oxadiazole-2,5-diyldi-5,2-thiophenediyl)]di-, polymer with 1,2-ethanediylbis[chlorodimethylsilane] (9CI) (CA INDEX NAME)

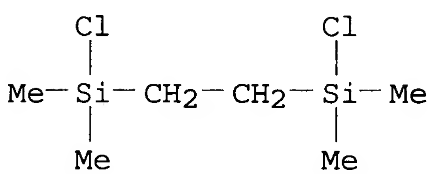
CM 1

CRN 340015-73-8
CMF C10 H4 Li2 N2 O S2



CM 2

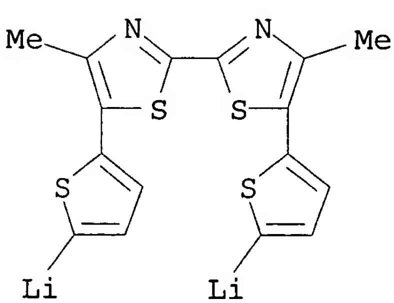
CRN 13528-93-3
CMF C6 H16 Cl2 Si2



RN 340015-76-1 HCA
CN Lithium, [.mu.-[(4,4'-dimethyl[2,2'-bithiazole]-5,5'-diyl)di-5,2-thiophenediyl]]di-, polymer with 1,2-ethanediylbis[chlorodimethylsilane] (9CI) (CA INDEX NAME)

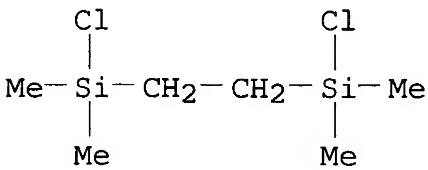
CM 1

CRN 340015-75-0
CMF C16 H10 Li2 N2 S4

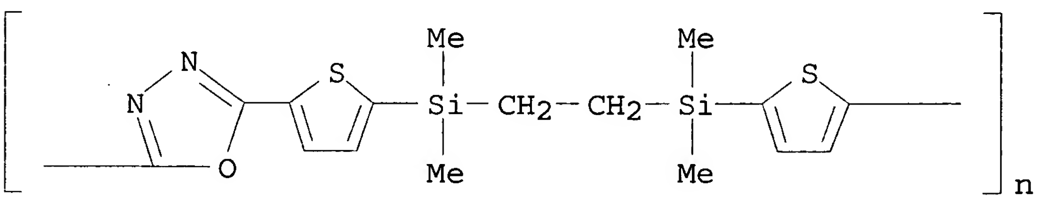


CM 2

CRN 13528-93-3
CMF C6 H16 Cl2 Si2



RN 340015-83-0 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-2,5-thiophenediyl(dimethylsilylene)-1,2-ethanediyl(dimethylsilylene)-2,5-thiophenediyl] (9CI) (CA INDEX NAME)



RN 340015-84-1 HCA
CN Poly[(4,4'-dimethyl[2,2'-bithiazole]-5,5'-diyl)-2,5-thiophenediyl(dimethylsilylene)-1,2-ethanediyl(dimethylsilylene)-2,5-thiophenediyl] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 38

ST polythiophene polyarylene polysilylene chromophore electron hole transport diode; **light emitting** diode
polythiophene polyarylene polysilylene chromophore

IT **Electroluminescent** devices
Electron-hole recombination
Luminescence
Polymerization
(synthesis of polymers with isolated thiophene-arylidene-thiophene chromophores for enhanced and specific electron/hole

transport)

IT 340015-59-0P 340015-61-4P 340015-64-7P 340015-66-9P
340015-68-1P 340015-70-5P 340015-72-7P **340015-74-9P**
340015-76-1P 340015-77-2P 340015-78-3P 340015-79-4P
340015-80-7P 340015-81-8P 340015-82-9P **340015-83-0P**
340015-84-1P 340293-41-6P
(synthesis of polymers with isolated thiophene-arylidene-thiophene chromophores for enhanced and specific electron/hole transport)

L72 ANSWER 21 OF 32 HCA COPYRIGHT 2005 ACS on STN

133:107450 Method of preparing electrochemical cells with minimum amount of organic solvent. Liu, Peikang; Mitchell, Porter; Gao, Feng (Valence Technology, Inc., USA). U.S. US 6096101 A 20000801, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-811845 19970305.

AB **Anodes**, **cathodes**, and/or solid electrolytes (or **separator** layers) of an electrochem. cell can be fabricated from aq. compns. contg. monomers and/or polymers. In one formulation, the aq. compn. contains binding materials that are polymd. and crosslinked. In a second formulation, the compn. is a latex having as aq. phase and a solid polymer phase. Upon removal of water, the compns. provide a polymeric structure suitable for use as an electrode or solid electrolyte.

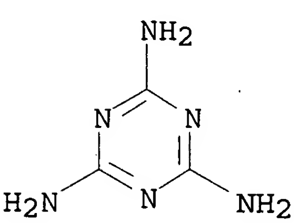
IT **9003-08-1**, Cymel 385
(crosslinking agent; method of prepg. electrochem. cells with min. amt. of org. solvent)

RN 9003-08-1 HCA

CN 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 108-78-1
CMF C3 H6 N6



CM 2

CRN 50-00-0
CMF C H2 O

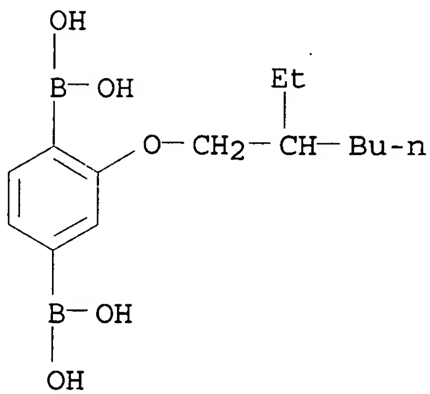
$H_2C{=}O$

IC ICM H01M006-00
ICS H01M004-62
INCL 029623100
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST battery **anode cathode** electrolyte
separator polymer
IT **9003-08-1**, Cymel 385
(crosslinking agent; method of prepg. electrochem. cells with min. amt. of org. solvent)

L72 ANSWER 22 OF 32 HCA COPYRIGHT 2005 ACS on STN
132:308924 Blue **electroluminescence** in blend of polymers containing carbazole and 1,3,4-oxadiazole units. Jin, Sung-Ho; Kim, Woo-Hong; Song, In-Sung; Kwon, Soon-Ki; Lee, Kwang-Sik; Han, Eun-Mi (Polymer Laboratory, Samsung Advanced Institute of Technology (SAIT), Moonji-dong, Yusung-gu, Taejon, S. Korea). Thin Solid Films, 363(1,2), 255-258 (English) 2000. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..
AB The electro-optical properties of poly(2,5-dihexyl phenylene-alt-N-ethyl-3,6-carbazole vinylene) (PDPCVz) and poly[1',4'-phenylene-1'',4''-(2''-(2'''-ethylhexyloxy))phenylene-2,5-(1''',4'''-phenylene)-1,3,4-oxadiazolyl] (PPEPPO) were studied. The photoluminescence and **electroluminescence** spectra of PDPCVz-PPOPPD blend films are mainly due to the luminance of PDPCVz, even at low PDPCVz ratios. The blue **electroluminescence** was significantly enhanced by efficient energy transfer from the PPEPPO exited state which has a larger band **gap**, to PDPCVz with a smaller band **gap**. A test **electroluminescent** device with the blend as emitter and hole transport layer and tris-(8-hydroxyquinoline)aluminum Alq3 as the electron transport layer, and ITO and Al **electrodes**, showed significant improvements in charge injection and **electroluminescence** efficiency vs. PDPCVz devices.
IT **265124-40-1**
(efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)
RN 265124-40-1 HCA
CN Boronic acid, [2-[(2-ethylhexyl)oxy]-1,4-phenylene]bis-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

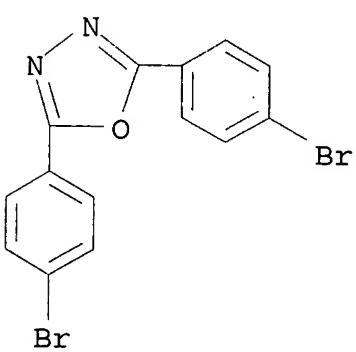
CM 1

CRN 265124-39-8
CMF C14 H24 B2 O5



CM 2

CRN 19542-05-3
CMF C14 H8 Br2 N2 O



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 73
ST blue **electroluminescence** polyhexylphenylene carbazole vinylene blend; polyphenylenevinylene oxadiazolyl photoluminescence enhancement polyphenylenevinylene carbazole; charge injection polyphenylenevinylene blend layer **electroluminescent** device
IT Electron transport
Electrooptical effect
Luminescence
Luminescence, **electroluminescence**
Photoinduced energy transfer

(efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT Polymer blends
(efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT Polyoxadiazoles
Polyoxadiazoles
(poly(arylenealkenylene)-; efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT Poly(arylenealkenylenes)
(polycarbazole; efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT Poly(arylenealkenylenes)
Poly(arylenealkenylenes)
(polyoxadiazole-; efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT 2085-33-8, Alq3 7429-90-5, Aluminum, uses 50926-11-9, Indium tin oxide
(efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

IT 224558-12-7 **265124-40-1** 265124-41-2 265642-03-3
(efficient band **gap** matching for improved energy transfer and blue **electroluminescence** of carbazole- and oxadiazolyl-contg. poly(phenylene vinylene) blends for **EL** devices)

L72 ANSWER 23 OF 32 HCA COPYRIGHT 2005 ACS on STN
125:71258 Organometallic fluorescent complex polymers for **light emitting** applications. Shi, Song Q.; So, Franky (Motorola Inc., USA). Brit. UK Pat. Appl. GB 2292948 A1 19960313, 16 pp. (English). CODEN: BAXXDU. APPLICATION: GB 1995-18124 19950906. PRIORITY: US 1994-304453 19940912.

AB Fluorescent complex polymers comprise fluorescent organometallic complexes connected by org. chain **spacers** having ester, amide, or ether functional groups at their ends to which the complexes are connected. Methods for prepg. the polymers by

reacting organometallic complexes with **spacer** mols. are described. The polymers may be utilized in the fabrication of **light-emitting** devices.

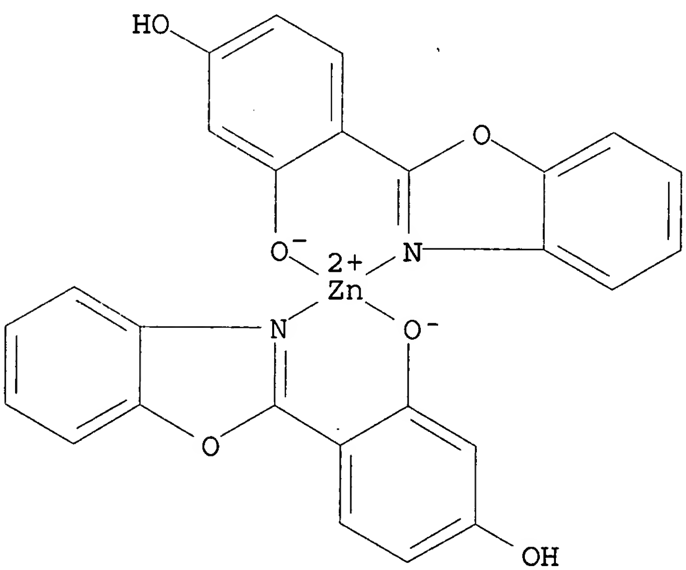
IT **178564-05-1P**
(organometallic fluorescent complex polymers for **light-emitting** applications)

RN 178564-05-1 HCA

CN Zinc, bis[4-(2-benzoxazolyl)-1,3-benzenediolato-N4,O3]-, (T-4)-, polymer with dimethyltetradecanedioic acid (9CI) (CA INDEX NAME)

CM 1

CRN 178564-04-0
CMF C26 H16 N2 O6 Zn
CCI CCS



CM 2

CRN 178564-03-9
CMF C16 H30 O4
CCI IDS

$HO_2C-(CH_2)_{12}-CO_2H$

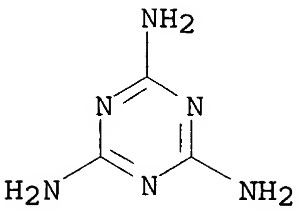
2 (D1—Me)

IC ICM C09K011-06
ICS C08G063-68; H01L033-00; H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38
IT **Electroluminescent** devices
Fluorescent substances
(organometallic fluorescent complex polymers for **light-emitting** applications)
IT Polyesters, uses
(organometallic fluorescent complex polymers for **light-emitting** applications)
IT **178564-05-1P** 178564-07-3P
(organometallic fluorescent complex polymers for **light-emitting** applications)
IT 67-68-5, Dimethylsulfoxide, uses 127-19-5 872-50-4, uses
(organometallic fluorescent complex polymers for **light-emitting** applications)

L72 ANSWER 24 OF 32 HCA COPYRIGHT 2005 ACS on STN
121:219594 Aluminum electrolytic capacitor having hydroxypropyl(alkyl)cellulose separator. Shimamoto, Hideki; Nitsuta, Yukihiro; Samura, Tetsuya; Akyama, Hajime (Matsushita Electric Ind Co Ltd, Japan; Sanyo Chemical Ind Ltd). Jpn. Kokai Tokkyo Koho JP 06132164 A2 19940513 Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-301672 19921013.
AB In the capacitor obtained by impregnating an electrolytic soln. between a **cathode** foil and an **anode** foil via a **separator**, the **separator** consists of a hydroxypropyl(alkyl)cellulose film and the electrolytic soln. contains a quaternary ammonium salt. The capacitor showed high withstand voltage and stability at high temp.
IT **158315-74-3**
(hydroxypropyl(alkyl)cellulose separator for aluminum electrolytic capacitor with high withstand voltage and stability at high temp.)
RN 158315-74-3 HCA
CN Cellulose, 2-hydroxypropyl methyl ether, polymer with formaldehyde and 1,3,5-triazine-2,4,6-triamine (9CI) (CA INDEX NAME)

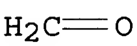
CM 1

CRN 108-78-1
CMF C3 H6 N6



CM 2

CRN 50-00-0
CMF C H2 O



CM 3

CRN 9004-65-3
CMF C3 H8 O2 . x C H4 O . x Unspecified

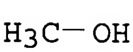
CM 4

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

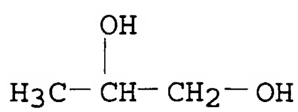
CM 5

CRN 67-56-1
CMF C H4 O



CM 6

CRN 57-55-6
CMF C3 H8 O2

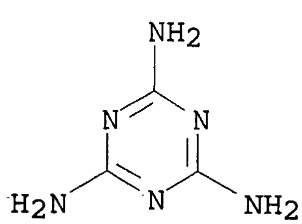


IC ICM H01G009-02
ICS H01G009-02
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 38
IT 9004-62-0, Hydroxyethylcellulose 9004-64-2, Hydroxypropylcellulose 9004-65-3 41606-95-5, Tetraethylammonium phthalate, uses 111754-40-6, Tetraethylammonium maleate, uses **158315-74-3** 158315-75-4
(hydroxypropyl(alkyl)cellulose separator for aluminum electrolytic capacitor with high withstand voltage and stability at high temp.)

L72 ANSWER 25 OF 32 HCA COPYRIGHT 2005 ACS on STN
117:38557 Electrolytic capacitor having unwoven fiber separator. Sasaki, Toshiaki; Shimizu, Makoto; Nakaaki, Kentaro; Shimada, Akihiro; Ito, Takahito (Nippon Chemicon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 04058508 A2 19920225 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-168257 19900628.
AB In the capacitor having a unwoven fiber **separator** between an **anode** and a **cathode**, the fiber is bound with a binder of poly(vinyl alc.), epoxy resin, silicone resin, and/or melamine resin. The fiber showed high tensile strength and short-cut was prevented.
IT **9003-08-1**, Melamine resin
(unwoven fiber separator binder, for electrolytic capacitor)
RN 9003-08-1 HCA
CN 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde (9CI) (CA INDEX NAME)

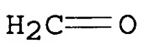
CM 1

CRN 108-78-1
CMF C3 H6 N6



CM 2

CRN 50-00-0
CMF C H2 O

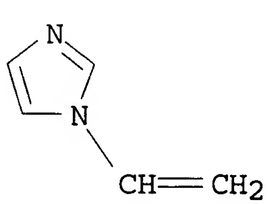


IC ICM H01G009-02
ICS D04H001-58
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 40
IT 9002-89-5, Poly(vinyl alcohol) **9003-08-1**, Melamine resin
(unwoven fiber separator binder, for electrolytic capacitor)

L72 ANSWER 26 OF 32 HCA COPYRIGHT 2005 ACS on STN
116:12368 Gas-discharge radiation counter. Gromov, V. V.; Isakov, L. M.; Krutyakov, A. N.; Saunin, E. I.; Khodyakov, A. A.; Shadrin, A. A. (USSR). U.S.S.R. SU 1334956 A1 19910407 From: Otkrytiya, Izobret. 1991, (13), 242. (Russian). CODEN: URXXAF. APPLICATION: SU 1985-3983529 19851202.
AB To simplify the construction and improve the time resoln. of the counter, contg. a **cathode**, a metal **anode**, and a sensitive **space** between them filled with a working gas having no quenching additive, the metal anode is coated with a compn. contg. a polymer dielec. and an antistatic agent, having resistivity 108-1011 .OMEGA.-cm and layer thickness 10-1-10-4 mm.
IT **25232-42-2**, Poly(N-vinylimidazole)
(radiation counters having metal anodes coated with polystyrene and)
RN 25232-42-2 HCA
CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1072-63-5
CMF C5 H6 N2



IC ICM G01T001-18

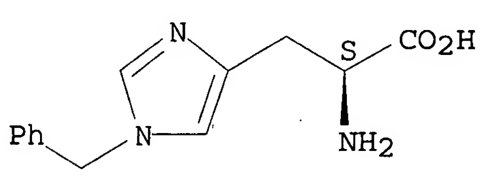
ICS H01J047-08
CC 71-7 (Nuclear Technology)
Section cross-reference(s): 38
IT **25232-42-2**, Poly(N-vinylimidazole)
(radiation counters having metal anodes coated with polystyrene and)

L72 ANSWER 27 OF 32 HCA COPYRIGHT 2005 ACS on STN
107:186948 MIS-type **light-emitting** diode.
Mizushima, Koichi; Naito, Katsuyuki; Okamoto, Masayoshi (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 62076571 A2 19870408 Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-214553 19850930.
AB The insulating layer of the title diode consists of an org. thin film laminate comprising .gtoreq.2 Langmuir-Blodgett (LB) films. The product is useful in printers and mini-facsimile machines. A 3-layered LB film laminate formed from a 1:5 (vol.) mixt. of Cl2CHCO2H and CHCl3 contg. poly-L-phenylalanine (mol. wt. 50,000), and a 2-layered laminate formed from a 1:1:1 mixt. of Et2N-p-C6H4CH:NNHPh, poly(im-benzyl-L-histidine), and stearic acid were formed on a N-doped n-**GaP** wafer having an In-Ge **electrode**, and coated with a Au **electrode.** The LED had peak emission at 565 nm, efficiency 0.2%, and stable current-voltage characteristics.
IT **31534-22-2**
(elec. insulating Langmuir-Blodgett film laminates contg., for LEDs)
RN 31534-22-2 HCA
CN L-Histidine, 1-(phenylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16832-24-9
CMF C13 H15 N3 O2

Absolute stereochemistry.



IC ICM H01L033-00
ICS H01L021-368; H01L029-28
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

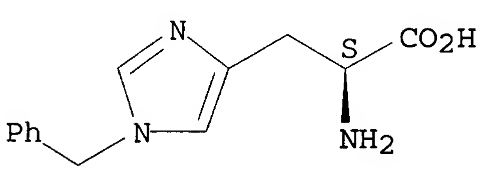
Section cross-reference(s): 74, 76
IT **Electroluminescent** devices
(MIS, elec. insulating Langmuir-Blodgett film laminates for)
IT 25191-15-5, Poly-L-phenylalanine 30025-69-5 **31534-22-2**
(elec. insulating Langmuir-Blodgett film laminates contg., for LEDs)

L72 ANSWER 28 OF 32 HCA COPYRIGHT 2005 ACS on STN
107:186945 MIS-type **light-emitting** diode.
Mizushima, Koichi; Okamoto, Masayoshi; Naito, Katsuyuki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 62076573 A2 19870408 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-214556 19850930.
AB The insulating layer of the title diode comprises an electron-acceptor-doped Langmuir-Blodgett (LB) film. The product is useful in printers and mini-facsimile machines. A 5-layered LB film [contg. poly(im-benzyl-L-histidine) and stearic acid] doped with POCl3 was formed on a **GaP** wafer having an In-Ge ohmic **electrode** and coated with Au 200-.ANG. thick as the **electrode.** The LED had peak emission at 565 nm, efficiency 0.2%, and stable current-voltage characteristics.
IT **31534-22-2**
(elec. insulating Langmuir-Blodgett film laminates contg., for LEDs)
RN 31534-22-2 HCA
CN L-Histidine, 1-(phenylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16832-24-9
CMF C13 H15 N3 O2

Absolute stereochemistry.



IC ICM H01L033-00
ICS H01L021-368; H01L029-28
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
IT **Electroluminescent** devices
(MIS, elec. insulating Langmuir-Blodgett film laminates for)

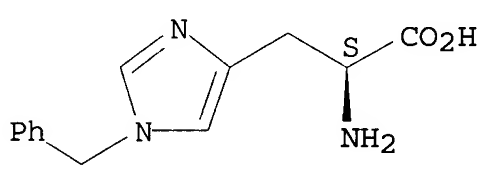
IT **31534-22-2**
(elec. insulating Langmuir-Blodgett film laminates contg., for LEDs)

L72 ANSWER 29 OF 32 HCA COPYRIGHT 2005 ACS on STN
107:186944 MIS-type **light-emitting** diode.
Mizushima, Koichi; Mori, Yasushi (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 62076572 A2 19870408 Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-214555 19850930.
AB The title diodes, which employ Langmuir-Blodgett (LB) org. film insulators, use an elec. conductive org. film as the **electrode.** The product is useful in printers and mini-facsimile machines. A 5-layered LB film was formed on a **GaP** wafer from a CHCl3 soln. contg. a 1:1 mixt. of poly(im-benzyl-L-histidine) and stearic acid, and coated with a 200-.ANG. thick Ryton V-1 film as the **electrode.** The LED had peak emission at 565 nm, efficiency 0.3% and a stable current-voltage characteristic.
IT **31534-22-2**
(Langmuir-Blodgett films contg., elec. insulating, for MIS LEDs)
RN 31534-22-2 HCA
CN L-Histidine, 1-(phenylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16832-24-9
CMF C13 H15 N3 O2

Absolute stereochemistry.



IC ICM H01L033-00
ICS H01L021-368; H01L029-28
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
ST LED MIS org film **electrode**; Langmuir Blodgett film insulator LED
IT **Electroluminescent** devices
(MIS, elec. conductive org. film **electrodes** for, having Langmuir-Blodgett insulating film laminates)
IT Polymers, uses and miscellaneous

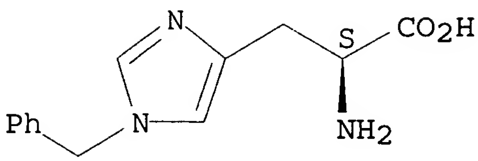
(elec. conductive, **electrode** films for MIS LEDs from)
IT Electric conductors
(polymers, films, for MIS **LED electrodes**)
IT Films
(Langmuir-Blodgett, elec. insulating, for LEDs, elec. conductive org. film **electrodes** for use with)
IT **31534-22-2**
(Langmuir-Blodgett films contg., elec. insulating, for MIS LEDs)
IT 25212-74-2, Ryton V-1
(elec. conductive, **electrode** films for MIS LEDs from)

L72 ANSWER 30 OF 32 HCA COPYRIGHT 2005 ACS on STN
106:111035 MIS LED having an organic Langmuir-Blodgett film as an insulator. Miura, Akira; Mizushima, Koichi; Hirahara, Keijiro; Gemma, Nobuhiro; Furuno, Taiji; Sasabe, Hiroyuki (Toshiba Corp., Japan). Ger. Offen. DE 3540306 A1 19861002, 19 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1985-3540306 19851113. PRIORITY: JP 1985-59460 19850326.
AB A MIS LED in which the insulator is an org. Langmuir-Blodgett (LB) film including .gtoreq.1 synthetic protein and .gtoreq.1 natural protein has significantly improved dynamic characteristics, luminescent efficiency, and long-time stability. Thus, a LB-film-forming soln. prepd. by dissolving poly-L-phenylalanine (mol. wt. .apprx.50,000) in a 1:5 (vol.) mixt. of dichloroacetic acid and CHCl3 at a concn. of 1 mg/mL was used to form a 5-layer LB film on a N-doped n-**GaP** wafer having an In-Ga **electrode.** Au was vacuum-deposited to form the upper **electrode.** The LED obtained had peak emission at 565 nm and a stable current-voltage characteristic. The luminescent efficiency was 2% at 5 V forward bias and 25 mA, .apprx.3 times that of conventional orange-emitting LEDs. The output was maintained for .apprx.5 days, indicating excellent stability.
IT **31534-22-2**
(elec. insulating Langmuir-Blodgett films contg., for MIS LEDs)
RN 31534-22-2 HCA
CN L-Histidine, 1-(phenylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16832-24-9
CMF C13 H15 N3 O2

Absolute stereochemistry.

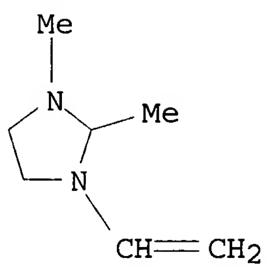


IC ICM H01L033-00
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 34, 76
IT **Electroluminescent** devices
(MIS, having Langmuir-Blodgett insulating films contg. proteins)
IT 113-73-5 25191-15-5 **31534-22-2** 107029-70-9
(elec. insulating Langmuir-Blodgett films contg., for MIS LEDs)

L72 ANSWER 31 OF 32 HCA COPYRIGHT 2005 ACS on STN
104:37008 High cycle life secondary lithium battery. Yen, Shiao-ping S.; Carter, Boyd J.; Shen, David H.; Somoano, Robert B. (California Institute of Technology, USA). U.S. US 4550064 A 19851029, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1983-559345 19831208.
AB A secondary nonaq. Li battery of high energy d. and long cycle-life is obtained by coating the separator with a film of a cationic polymer such as poly(vinyl imidazoline). The binder (EPR or EPDM rubber) of the chalcogenide (TiS2) cathode can also be modified by addn. of 0.1-5 wt.% of a sulfolane. The **anode**, **separator**, and **cathode** are preferably spirally wound and disposed in a sealed case. Thus, 1-vinyl-2-Me imidazoline was quaternized with an excess of Me2SO4, polymd. with K2S2O7, and the polymer was deposited on a porous polypropylene material to form a separator. A cathode was prepd. by coating a paste of TiS2 (70-99 wt.%), EPDM, and 3-Me sulfolane to a conductive substrate and curing. A battery using a Li **anode**, the prepd. **cathode**, the prepd. **separator**, and a 1.3 M LiAsF6-3-Me sulfolane electrolyte showed a 30% theor. capacity after 352 charge-discharge cycles at 60.degree..
IT **99817-56-8**
(separators from polypropylene coated with, for lithium-titanium sulfide batteries)
RN 99817-56-8 HCA
CN 1H-Imidazolium, 1-ethenyl-4,5-dihydro-2,3-dimethyl-, methyl sulfate, homopolymer (9CI) (CA INDEX NAME)

CM 1

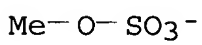
CRN 99817-55-7
CMF C7 H13 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 21228-90-0
CMF C H3 O4 S



IC ICM H01M004-00
INCL 429094000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT **99817-56-8**
(separators from polypropylene coated with, for lithium-titanium sulfide batteries)

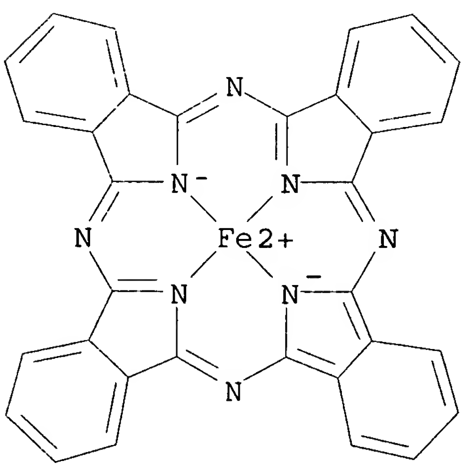
L72 ANSWER 32 OF 32 HCA COPYRIGHT 2005 ACS on STN
90:66206 Electrochemical apparatus for determining hydrogen and hydrogen-containing reducing agents. Lidorenko, N. S.; Mutchnik, G. F.; Polyak, A. G.; Vakhonin, V. A.; Krylov, V. M. (USSR). Ger. Offen. DE 2715285 19781012, 13 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1977-2715285 19770405.
AB An electrochem. app. for detg. H and H-contg. reducing agents consists of a Pt black **anode** and a **cathode** **sepd.** by an acidic polymer electrolyte membrane. The cathode is activated with a selective org. compd. and coal (in 1:1 ratio) to catalyze the electrochem. redn. of O. When H is introduced into the app. atm., H is adsorbed on the surface of the Pt anode and undergoes oxidn. to H+. The released electrons are then conducted through the outer current circuit to the cathode which is activated with the org. material, e.g. tetrachloro-p-benzoquinone (I) to form tetrachloro-p-benzohydroquinone (II) which then reacts with O from the atm. to form the benzoquinone. The current produced from the overall reaction (I + H2 + 2e .fwdarw. II) is measured and related to H concn. Electrochem. cells for detg. H

are described in which the cathode is activated with 1:1 coal-I, 1:1 coal-iron phthalocyanine, 1:1 coal-iron phthalocyanine polymer, 1:1 coal-Co phthalocyanine polymer, 1:1 coal-o-tetrachlorobenzoquinone, 1:1 coal-redox polymer (formaldehyde-pyrocatechol copolymer), and 1:1 coal-o-tetrachlorobenzoquinone-benzidine copolymer. The app. was also used to det. propane, formaldehyde, and hydrazine in air. The sensitivity is 10-4-10-3 vol.%.

IT **36344-64-6**
(cathode activated with, in electrochem. cell for hydrazine and hydrogen detn.)
RN 36344-64-6 HCA
CN Iron, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

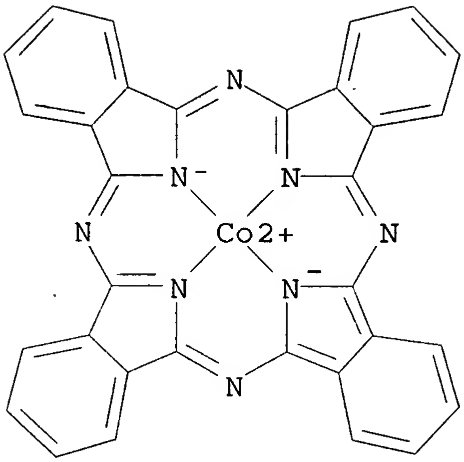
CRN 132-16-1
CMF C32 H16 Fe N8
CCI CCS



IT **36344-62-4**
(cathode activated with, in electrochem. cell for hydrogen detn.)
RN 36344-62-4 HCA
CN Cobalt, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

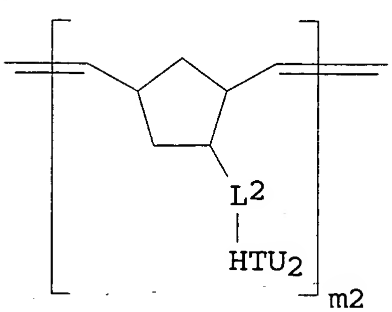
CRN 3317-67-7
CMF C32 H16 Co N8
CCI CCS

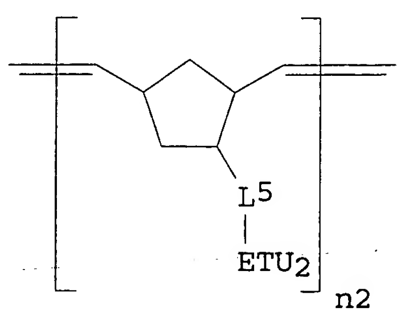


IC G01N027-52
CC 79-2 (Inorganic Analytical Chemistry)
    Section cross-reference(s): 72
IT **36344-64-6**
    (cathode activated with, in electrochem. cell for hydrazine and hydrogen detn.)
IT 25213-44-9 **36344-62-4** 68973-93-3
    (cathode activated with, in electrochem. cell for hydrogen detn.)

=> => d l73 1-22 cbib abs hitstr hitind

L73 ANSWER 1 OF 22 HCA
142:165272 Block copolymers for organic **electroluminescent** (**EL**) device and its display, illumination, and light source. Kawakami, Akira; Kita, Hiroshi; Ogino, Kenji (Konica Minolta Holdings, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2005015508 A2 20050120, 56 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-177859 20030623.
GI


I


II

AB The block copolymers comprise (A) block components of repeating units having hole-transporting units (HTU), (B) block components of repeating units having electron-transporting units (ETU), and (C) repeating units having phosphorescent units. Preferably, the block A is represented by the general formula [CHR1CR2(L1HTU1)]m1, I, or [O(CR3R4)l1CR5(L3HTU3)]m3 (HTU1-HTU3 = hole-transporting moiety; R1-R5 = H, substituent; L1-L3 = linking group, bond; m .gtoreq.3 integer; l1 = 1, 2, 3) and the block B is represented by the general formula [CHR6CR7(L4ETU1)]n1, II, or [O(CR8R9)l2CR10(L6ETU3)]n3 (ETU1-ETU3 = electron-transporting moiety; R6-R10 = H, substituent; L4-L6 = linking group, bond; n1-n3 .gtoreq.3 integer; l2 = 1, 2, 3). Preferably, the HTU comprise triphenylamine units and the ETU have F or F-contg. substituents. Preferably, the surface free energy of the monomer forming HTU-contg. repeating units is larger than that of the monomers of the ETU-contg. repeating units and these monomers are incompatible to each other. Preferably, the block copolymers are prepd. by atom.-transfer radical polymn. Preferably, .gtoreq.1 of the block A contains hydrolyzable silyl groups, more preferably, trialkoxysilyl groups, and also contains dialkylamino groups. The org. **EL** device contains the A-B-C block copolymers in .gtoreq.1 of the org. layers provided between a **cathode** and an **anode.** In another alternative, the org. **EL** device contains A-B block copolymers and phosphorescent compds. The org. **EL** device has high emission efficiency, long service life, and high productivity.

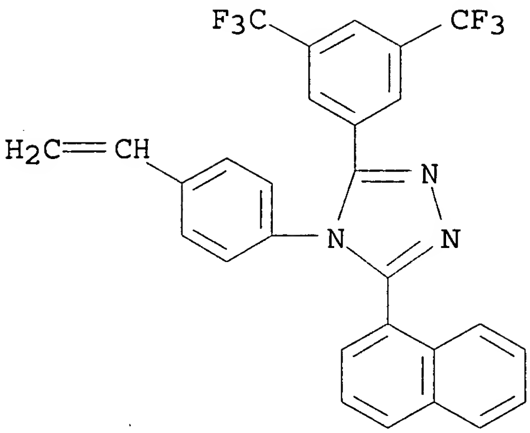
IT **828940-06-3P 830318-16-6P 830318-18-8P 830318-20-2P 830318-21-3P 830318-22-4P 830318-25-7P 830318-26-8P 830318-27-9P 830318-28-0P 830318-29-1P**
(block copolymers for org. **EL** device for display, illumination, and light source)

RN 828940-06-3 HCA

CN 9H-Carbazole, 9-(4-ethenylphenyl)-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, block (9CI) (CA INDEX NAME)

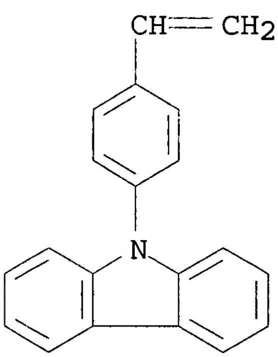
CM 1

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 2

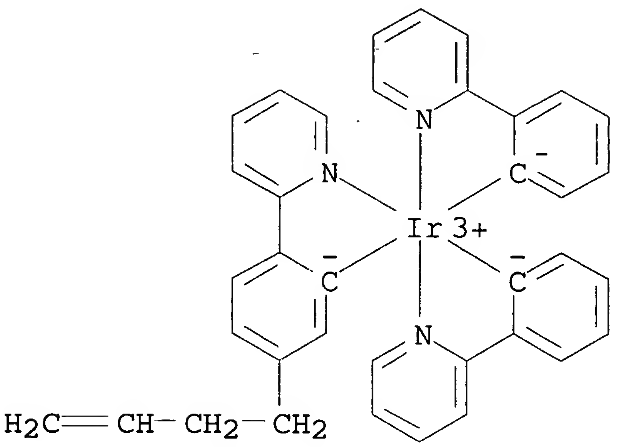
CRN 52913-19-6
CMF C20 H15 N



RN 830318-16-6 HCA
CN Iridium, [5-(3-butenyl)-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, N-[4'-[(4-ethenyl-1-naphthalenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diethyl-N-phenyl-1,4-naphthalenediamine and 9-(4-ethenylphenyl)-9H-carbazole, block (9CI) (CA INDEX NAME)

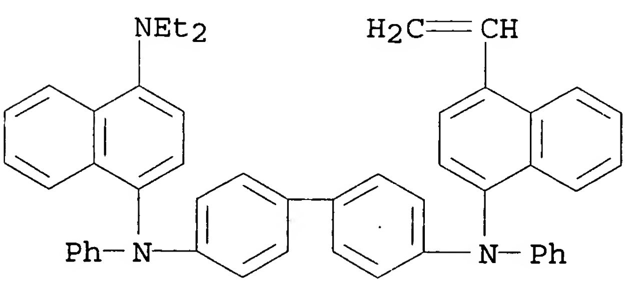
CM 1

CRN 830318-15-5
CMF C37 H30 Ir N3
CCI CCS



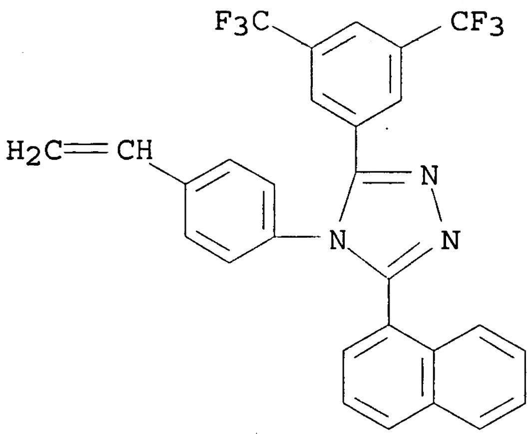
CM 2

CRN 828940-14-3
CMF C50 H43 N3



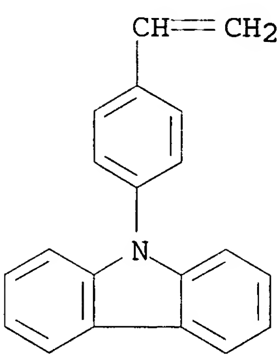
CM 3

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 4

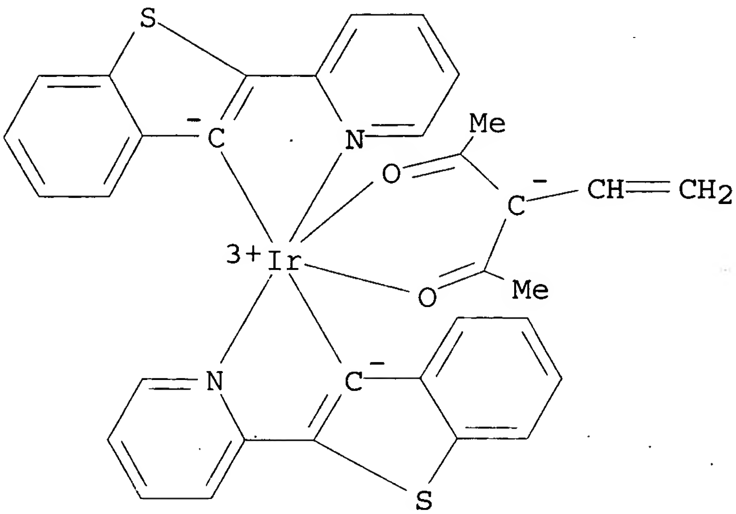
CRN 52913-19-6
CMF C20 H15 N



RN 830318-18-8 HCA
CN Iridium, (3-ethenyl-2,4-pentanedionato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, N-[4'-[(4-ethenyl-1-naphthalenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diethyl-N-phenyl-1,4-naphthalenediamine and 9-(4-ethenylphenyl)-9H-carbazole, block (9CI) (CA INDEX NAME)

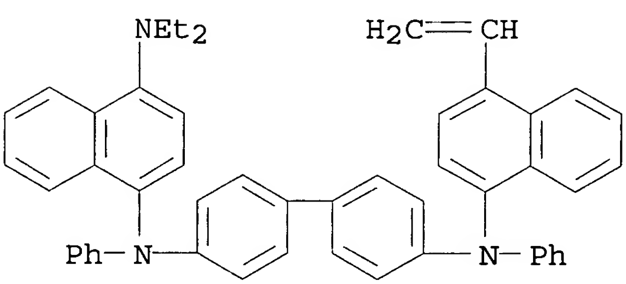
CM 1

CRN 830318-17-7
CMF C33 H25 Ir N2 O2 S2
CCI CCS



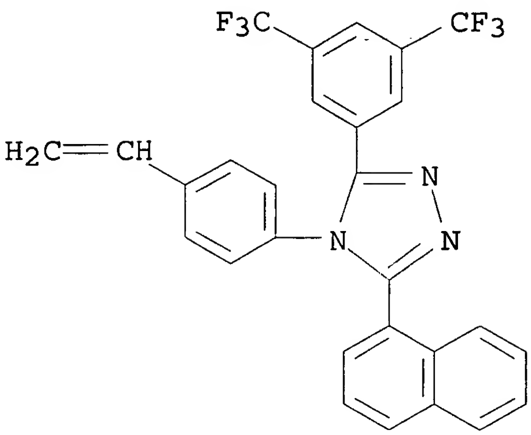
CM 2

CRN 828940-14-3
CMF C50 H43 N3



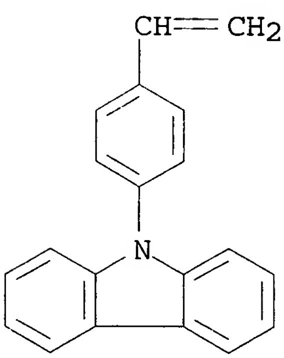
CM 3

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 4

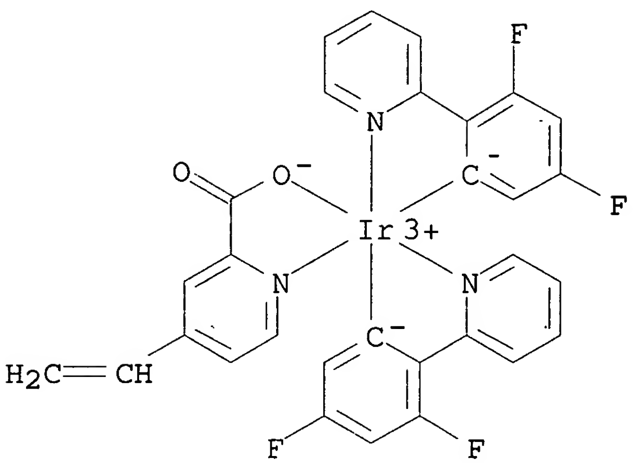
CRN 52913-19-6
CMF C20 H15 N



RN 830318-20-2 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, [5-(3-butenyl)-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]iridium, N-[4'-[(4-ethenyl-1-naphthalenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diethyl-N-phenyl-1,4-naphthalenediamine, 9-(4-ethenylphenyl)-9H-carbazole and (2-propenoato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]iridium, block (9CI) (CA INDEX NAME)

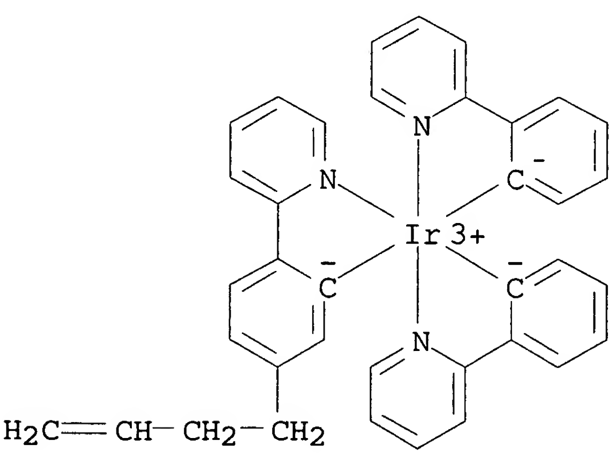
CM 1

CRN 830318-19-9
CMF C30 H18 F4 Ir N3 O2
CCI CCS



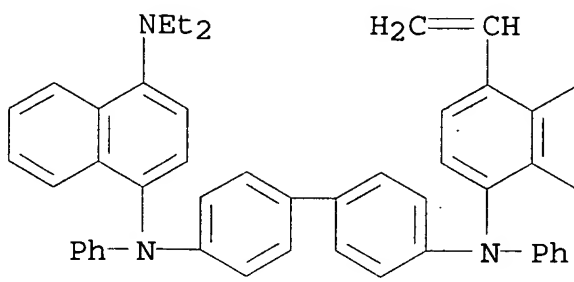
CM 2

CRN 830318-15-5
CMF C37 H30 Ir N3
CCI CCS



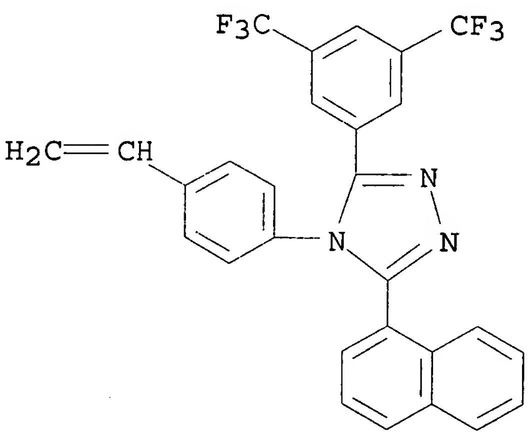
CM 3

CRN 828940-14-3
CMF C50 H43 N3



CM 4

CRN 828940-05-2
CMF C28 H17 F6 N3

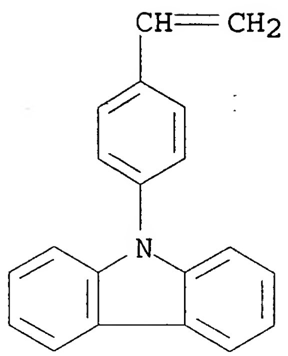


CM 5

CRN 805236-96-8
CMF C29 H19 Ir N2 O2 S2
CCI CCS
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 6

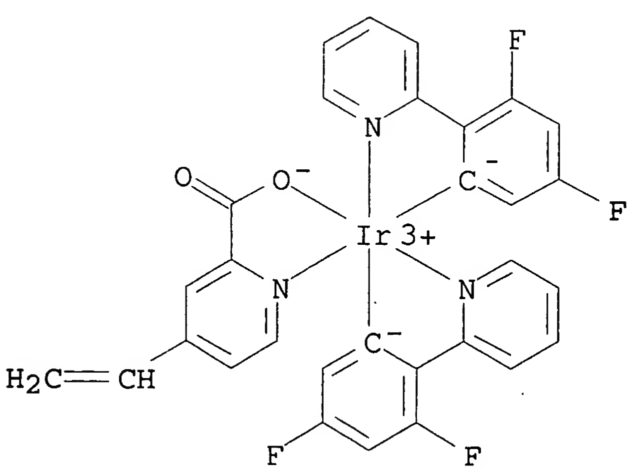
CRN 52913-19-6
CMF C20 H15 N



RN 830318-21-3 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, [5-(3-butenyl)-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]bis[2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C]iridium, N-(4-ethenylphenyl)-N,N'-bis(3-methylphenyl)-N'-[4-(trimethoxysilyl)phenyl][1,1'-biphenyl]-4,4'-diamine, 9-(4-ethenylphenyl)-9H-carbazole and (2-propenoato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]iridium, block (9CI) (CA INDEX NAME)

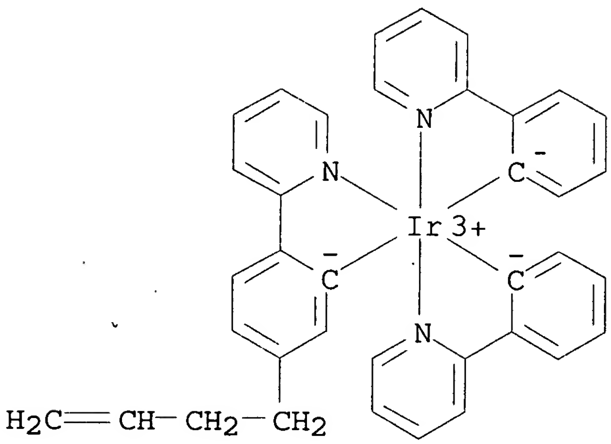
CM 1

CRN 830318-19-9
CMF C30 H18 F4 Ir N3 O2
CCI CCS



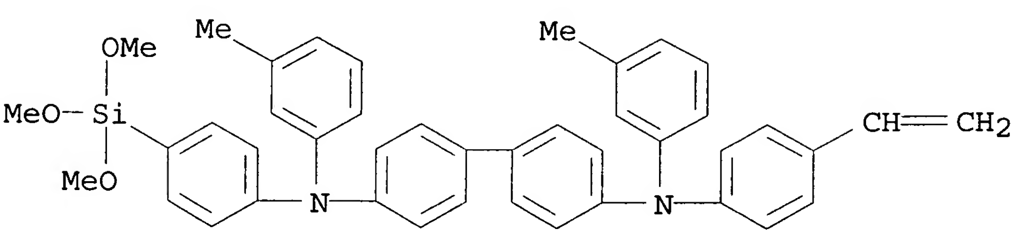
CM 2

CRN 830318-15-5
CMF C37 H30 Ir N3
CCI CCS



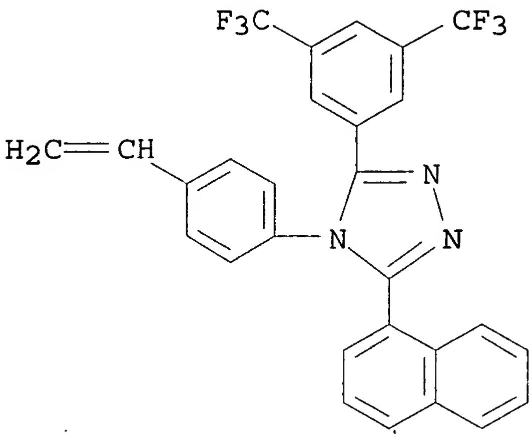
CM 3

CRN 828940-12-1
CMF C43 H42 N2 O3 Si



CM 4

CRN 828940-05-2
CMF C28 H17 F6 N3

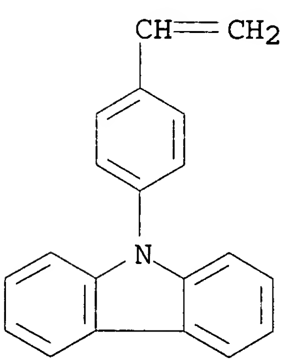


CM 5

CRN 805236-96-8
CMF C29 H19 Ir N2 O2 S2
CCI CCS
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 6

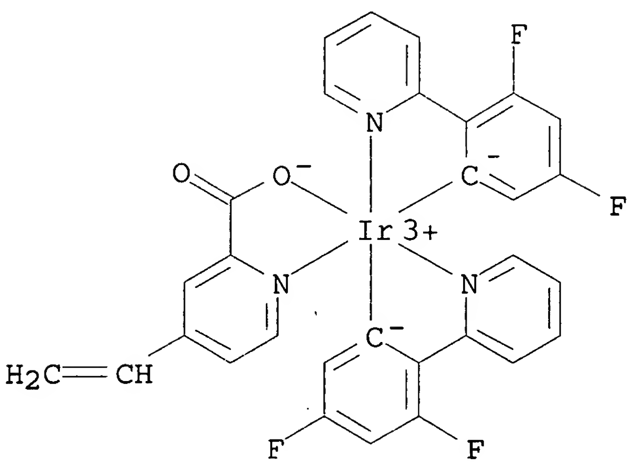
CRN 52913-19-6
CMF C20 H15 N



RN 830318-22-4 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole and 9-(4-ethenylphenyl)-9H-carbazole, block (9CI) (CA INDEX NAME)

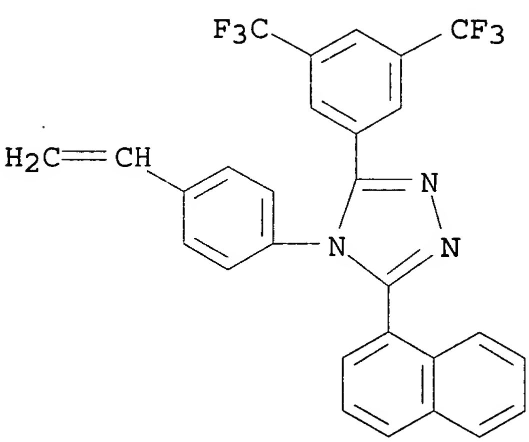
CM 1

CRN 830318-19-9
CMF C30 H18 F4 Ir N3 O2
CCI CCS



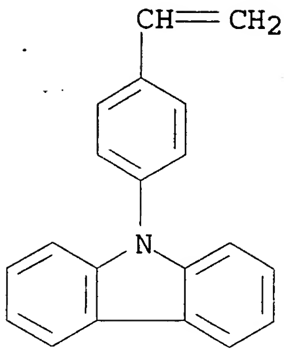
CM 2

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 3

CRN 52913-19-6
CMF C20 H15 N

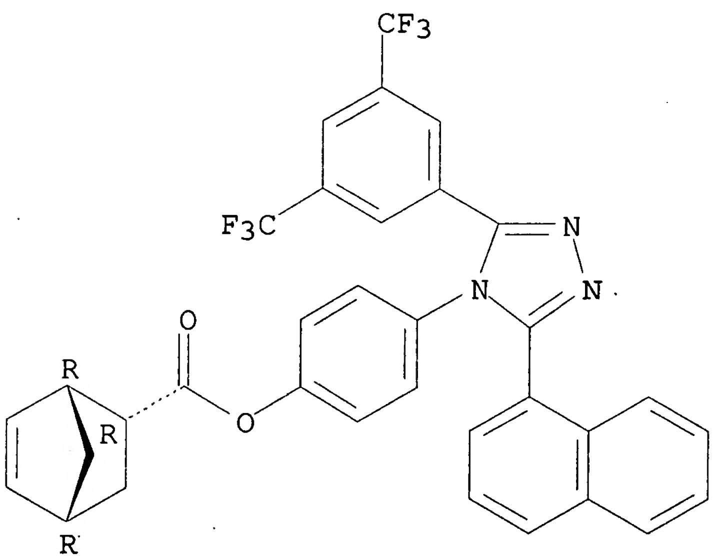


RN 830318-25-7 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C](4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2)-, polymer with rel-4-[3-[3,5-bis(trifluoromethyl)phenyl]-5-(1-naphthalenyl)-4H-1,2,4-triazol-4-yl]phenyl (1R,2R,4R)-bicyclo[2.2.1]hept-5-ene-2-carboxylate and rel-4-(9H-carbazol-9-yl)phenyl (1R,2R,4R)-bicyclo[2.2.1]hept-5-ene-2-carboxylate, block (9CI) (CA INDEX NAME)

CM 1

CRN 830318-24-6
CMF C34 H23 F6 N3 O2

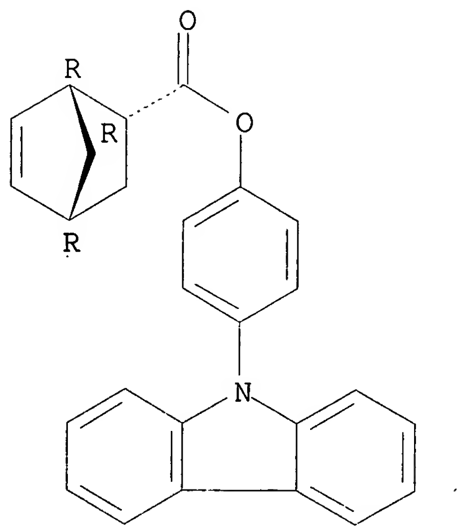
Relative stereochemistry.



CM 2

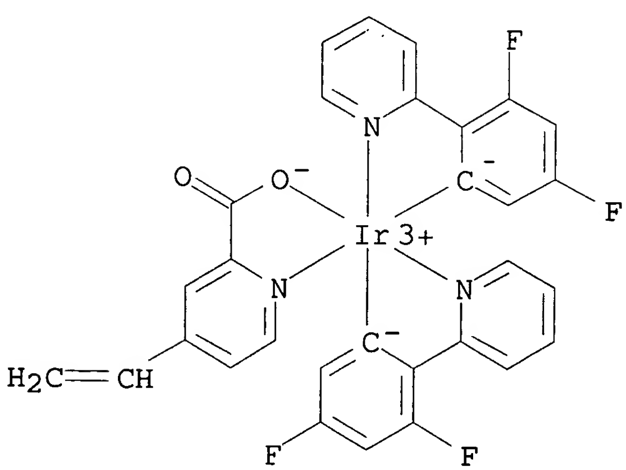
CRN 830318-23-5
CMF C26 H21 N O2

Relative stereochemistry.



CM 3

CRN 830318-19-9
CMF C30 H18 F4 Ir N3 O2
CCI CCS

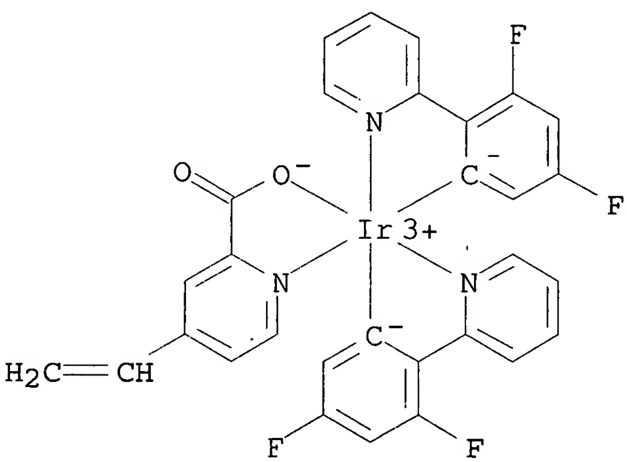


RN 830318-26-8 HCA

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, N-(4-ethenylphenyl)-N,N'-bis(3-methylphenyl)-N'-[4-(trimethoxysilyl)phenyl][1,1'-biphenyl]-4,4'-diamine and 9-(4-ethenylphenyl)-9H-carbazole, block (9CI) (CA INDEX NAME)

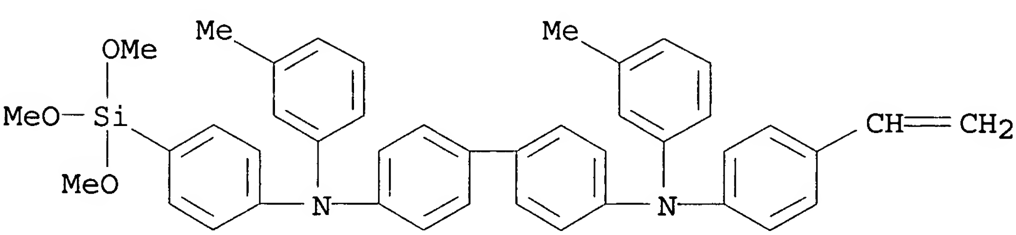
CM 1

CRN 830318-19-9
CMF C30 H18 F4 Ir N3 O2
CCI CCS



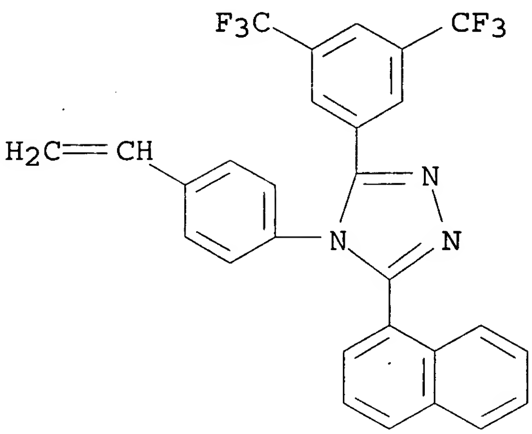
CM 2

CRN 828940-12-1
CMF C43 H42 N2 O3 Si



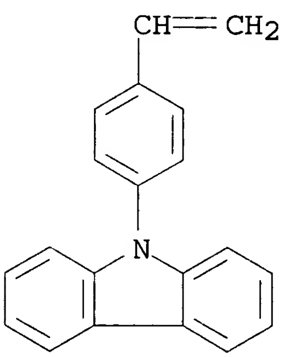
CM 3

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 4

CRN 52913-19-6
CMF C20 H15 N

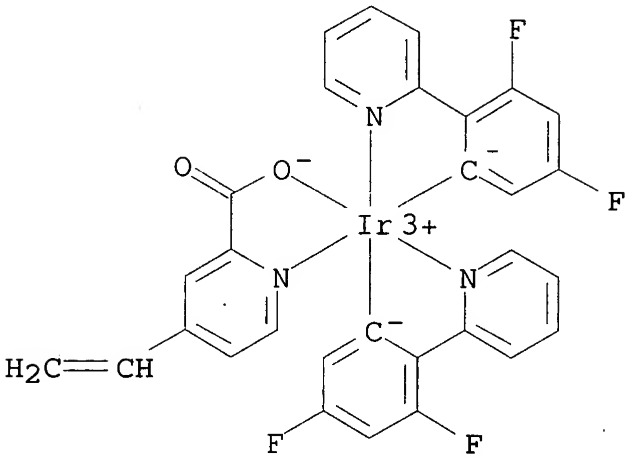


RN 830318-27-9 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, N-[4'-[(4-ethenyl-1-naphthalenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diethyl-N-phenyl-1,4-naphthalenediamine and 9-(4-ethenylphenyl)-9H-carbazole, block (9CI) (CA INDEX NAME)

CM 1

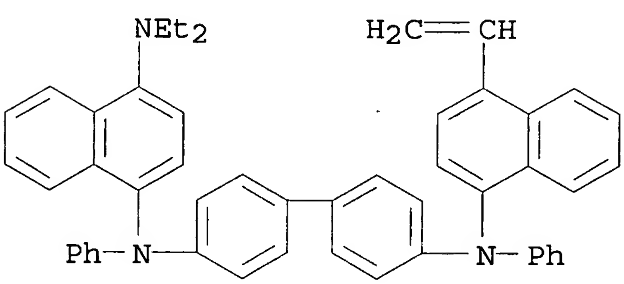
CRN 830318-19-9

CMF C30 H18 F4 Ir N3 O2
CCI CCS



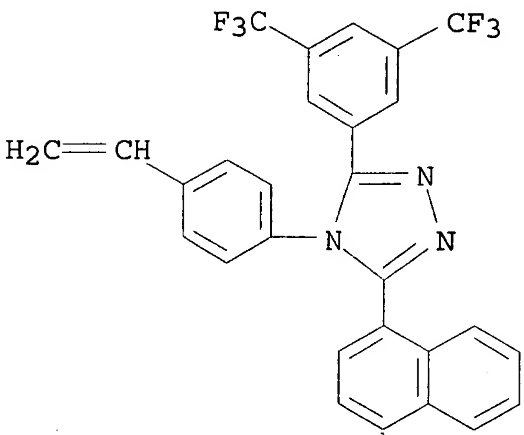
CM 2

CRN 828940-14-3
CMF C50 H43 N3



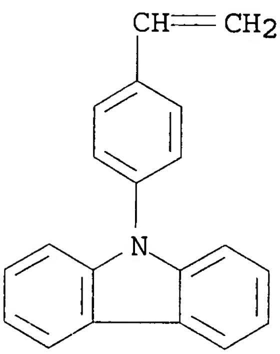
CM 3

CRN 828940-05-2
CMF C28 H17 F6 N3



CM 4

CRN 52913-19-6
CMF C20 H15 N

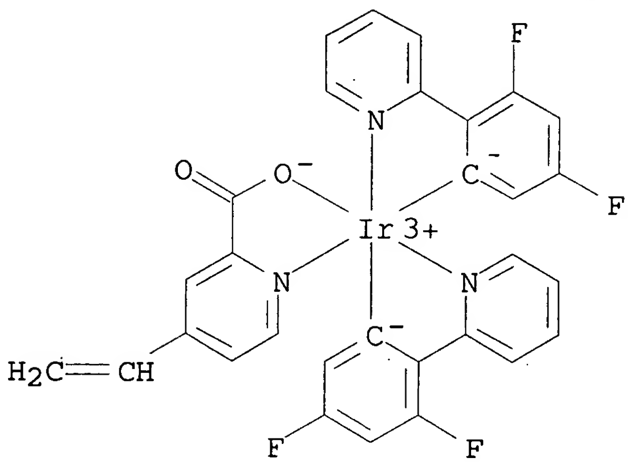


RN 830318-28-0 HCA
CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-.kappa.N)phenyl-.kappa.C][4-ethenyl-2-pyridinecarboxylato-.kappa.N1,.kappa.O2]-, polymer with 3-[3,5-bis(trifluoromethyl)phenyl]-4-(4-ethenylphenyl)-5-(1-naphthalenyl)-4H-1,2,4-triazole, N-[4'-[(4-ethenyl-1-naphthalenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diethyl-N-phenyl-1,4-naphthalenediamine, 9-(4-ethenylphenyl)-9H-carbazole and (2-propenoato-.kappa.O,.kappa.O')bis[2-(2-pyridinyl-.kappa.N)benzo[b]thien-3-yl-.kappa.C]iridium, block (9CI) (CA INDEX NAME)

CM 1

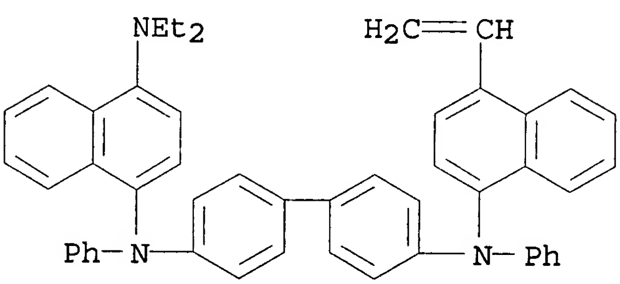
CRN 830318-19-9

CMF C30 H18 F4 Ir N3 O2
CCI CCS



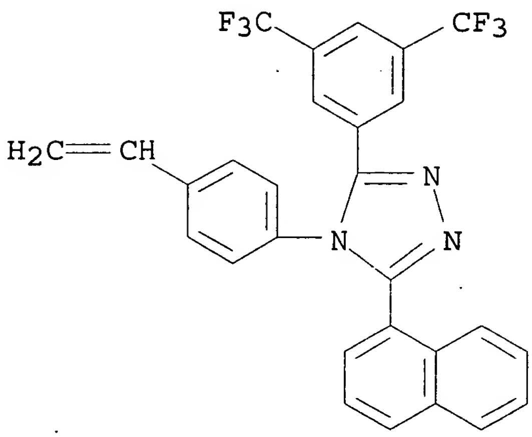
CM 2

CRN 828940-14-3
CMF C50 H43 N3



CM 3

CRN 828940-05-2
CMF C28 H17 F6 N3

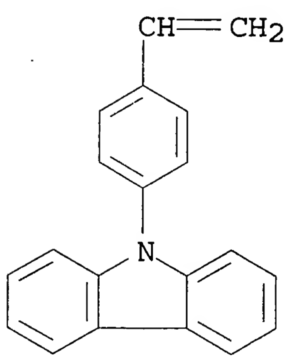


CM 4

CRN 805236-96-8
CMF C29 H19 Ir N2 O2 S2
CCI CCS
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 5

CRN 52913-19-6
CMF C20 H15 N

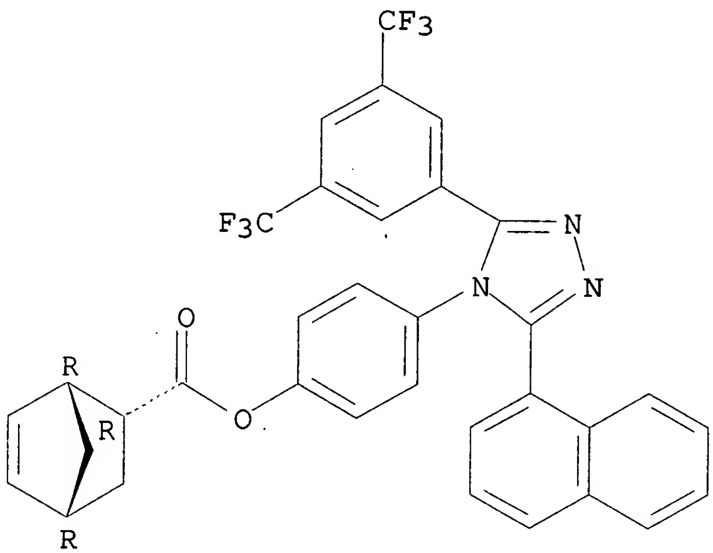


RN 830318-29-1 HCA
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 4-[3-[3,5-bis(trifluoromethyl)phenyl]-5-(1-naphthalenyl)-4H-1,2,4-triazol-4-yl]phenyl ester, (1R,2R,4R)-rel-, polymer with (1R,2R,4R)-rel-4-(9H-carbazol-9-yl)phenyl bicyclo[2.2.1]hept-5-ene-2-carboxylate, block (9CI) (CA INDEX NAME)

CM 1

CRN 830318-24-6
CMF C34 H23 F6 N3 O2

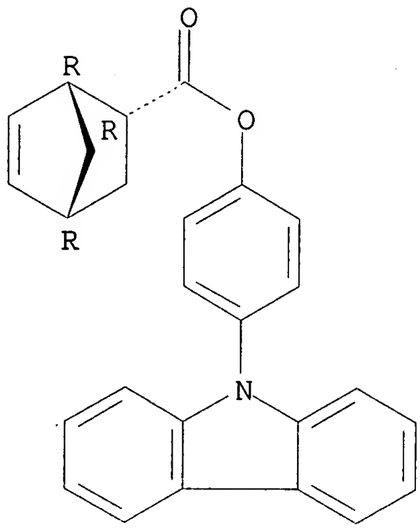
Relative stereochemistry.



CM 2

CRN 830318-23-5
CMF C26 H21 N O2

Relative stereochemistry.

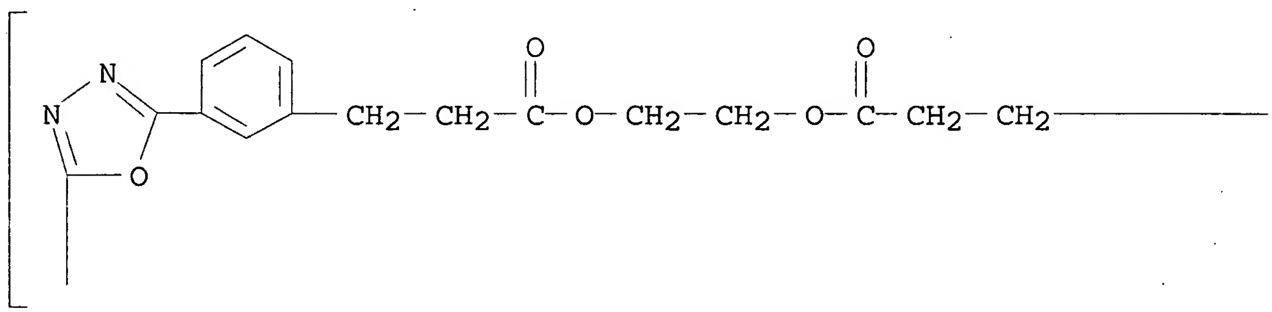


IC ICM C08F297-00
ICS C08G065-02; C09K011-06; H05B033-14; H05B033-22
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74
ST hole transporting unit block copolymer **electroluminescent** device; electron transporting unit block copolymer **electroluminescent** device; phosphorescent unit block copolymer **electroluminescent** device; light source org **electroluminescent** device; illumination org **electroluminescent** device; org **electroluminescent** display block copolymer
IT Light sources
(block copolymers for org. **EL** device for display, illumination, and light source)
IT **Electroluminescent** devices
(displays; block copolymers for org. **EL** device for display, illumination, and light source)
IT Luminescent screens
(**electroluminescent**; block copolymers for org. **EL** device for display, illumination, and light source)
IT Light
(fluorescent; block copolymers for org. **EL** device for display, illumination, and light source)
IT **Electroluminescent** devices
(org.; block copolymers for org. **EL** device for display, illumination, and light source)
IT **828940-06-3P 830318-16-6P 830318-18-8P**
830318-20-2P 830318-21-3P 830318-22-4P

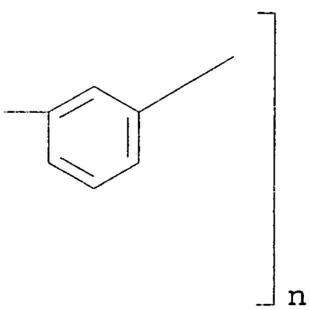
830318-25-7P 830318-26-8P 830318-27-9P
830318-28-0P 830318-29-1P
(block copolymers for org. **EL** device for display, illumination, and light source)
IT 94928-86-6 344796-22-1 344796-24-3 376367-93-0
(phosphor; block copolymers for org. **EL** device for display, illumination, and light source)

L73 ANSWER 2 OF 22 HCA COPYRIGHT 2005 ACS on STN
142:143788 Organic **electroluminescent** devices with charge accumulation-preventing charge transport materials. Yoneyama, Hirohito; Seki, Mieko; Iwasaki, Masahiro; Nukada, Katsumi; Okuda, Daisuke; Hirose, Hidekazu; Ozaki, Tadayoshi; Moriyama, Hiroaki; Ishii, Toru; Agata, Takeshi; Mashimo, Kiyokazu; Sato, Katsuhiro (Japan). U.S. Pat. Appl. Publ. US 2005014020 A1 20050120, 51 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-783847 20040220. PRIORITY: JP 2003-276570 20030718.
AB Org. **electroluminescent** devices including a pair of electrodes including an **anode** and a **cathode**, at least one of which is transparent or translucent; and one or more org. compd. layers placed between the pair of electrodes, wherein at least one of the org. compd. layers contains a charge transport material that satisfies the relations: (ta-tT)/ta < 0.5 and D/.mu. < 20 (in an elec. field of 10 V/.mu.m: tT = transit time of a transient photocurrent waveform; IT = a current value at time tT; Ia = half of the current value IT ; ta = time at the current value Ia on the transient photocurrent waveform; and D and .mu. = resp. a diffusion coeff. and a true mobility obtained from the transient photocurrent waveform).
IT **714966-19-5 827311-09-1**
(org. **electroluminescent** devices with charge accumulation-preventing charge transport materials)
RN 714966-19-5 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,3-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,3-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



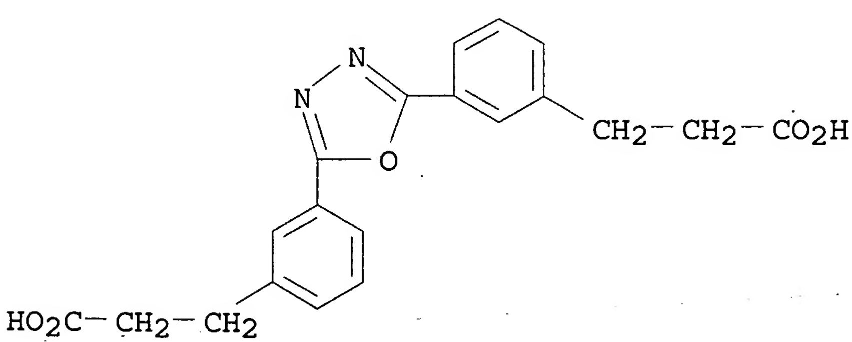
PAGE 1-B



RN 827311-09-1 HCA
CN Benzenepropanoic acid, 3,3'-(1,3,4-oxadiazole-2,5-diyl)bis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

CRN 827311-08-0
CMF C20 H18 N2 O5



CM 2

CRN 107-21-1
CMF C2 H6 O2

$HO-CH_2-CH_2-OH$

IC ICM H05B033-12
INCL 428690000; 428917000; 313504000; 313506000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
ST org **electroluminescent** device charge accumulation preventing charge transport material
IT **Electroluminescent** devices
(org.; org. **electroluminescent** devices with charge accumulation-preventing charge transport materials)
IT 252920-12-0 473799-92-7 605664-87-7 **714966-19-5**
827311-04-6 827311-06-8 827311-07-9 **827311-09-1**
(org. **electroluminescent** devices with charge accumulation-preventing charge transport materials)

L73 ANSWER 3 OF 22 HCA COPYRIGHT 2005 ACS on STN
141:372472 Highly efficient red electrophosphorescent devices based on an iridium complex with trifluoromethyl-substituted pyrimidine ligand. Niu, Yu-Hua; Chen, Baoquan; Liu, Sen; Yip, Hinlap; Bardecker, Julie; Jen, Alex K.-Y.; Kavitha, Jakka; Chi, Yun; Shu, Ching-Fong; Tseng, Ya-Hsien; Chien, Chen-Han (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Applied Physics Letters, 85(9), 1619-1621 (English) 2004. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.
AB Highly efficient red-emitting electrophosphorescent devices were fabricated by doping an Ir complex contg. trifluoromethyl (CF3)-substituted pyrimidine ligand into a conjugated bipolar polyfluorene with triphenylamine and oxadiazole as side chains. The device efficiency can be enhanced through effective exciton confinement using a layer of 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene on the **cathode** side and a layer of in situ polymd. tetraphenyldiamine-perfluorocyclobutane on the **anode** side. For a blend with 5% of the Ir complex, a max. external quantum efficiency of 7.9 photon/electron % and a max. brightness of 15800 cd/m2 are reached with Commission Internationale de L'Eclairage chromaticity coordinates of x = 0.65 and y = 0.34.
IT **607708-20-3**

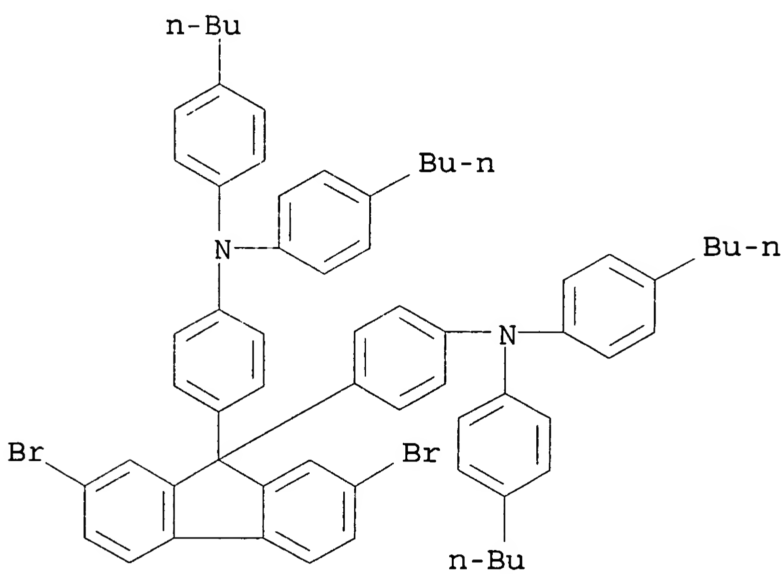
(highly efficient red electrophosphorescent devices based on an iridium complex with trifluoromethyl-substituted pyrimidine ligand)

RN 607708-20-3 HCA

CN Benzenamine, 4,4'-(2,7-dibromo-9H-fluoren-9-ylidene)bis[N,N-bis(4-butylphenyl)-, polymer with 2,2'-[(2,7-dibromo-9H-fluoren-9-ylidene)di-4,1-phenylene]bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazole] and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

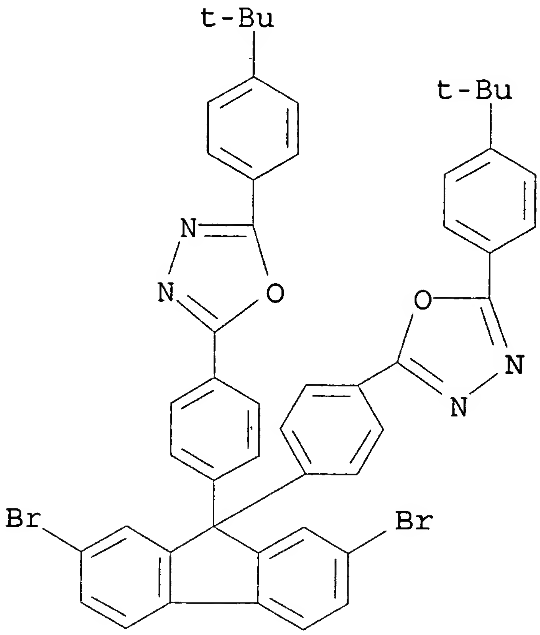
CM 1

CRN 607708-19-0
CMF C65 H66 Br2 N2



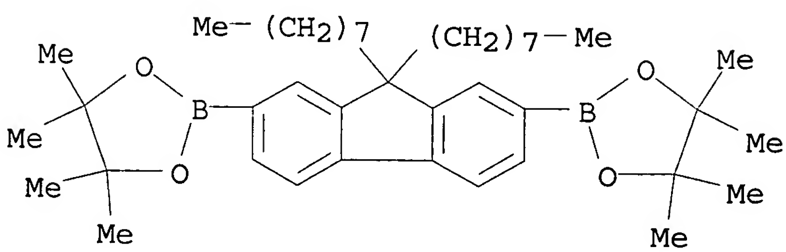
CM 2

CRN 492466-40-7
CMF C49 H40 Br2 N4 O2



CM 3

CRN 196207-58-6
CMF C41 H64 B2 O4



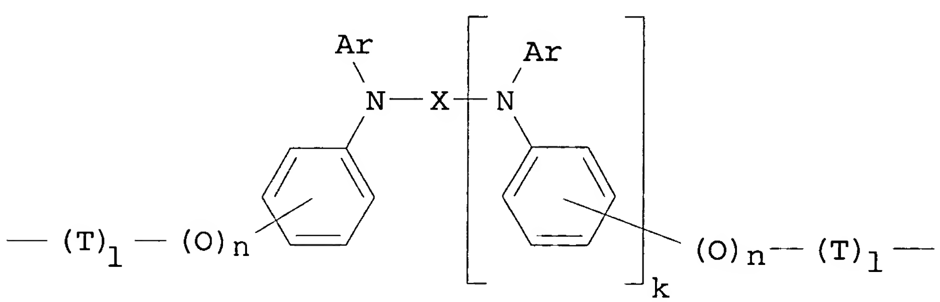
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36

IT **Electroluminescent** devices
Luminescence
Luminescence, **electroluminescence**
UV and visible spectra
(highly efficient red electrophosphorescent devices based on an iridium complex with trifluoromethyl-substituted pyrimidine ligand)

IT 192198-85-9 **607708-20-3** 775323-92-7 777855-56-8

(highly efficient red electrophosphorescent devices based on an iridium complex with trifluoromethyl-substituted pyrimidine ligand)

L73 ANSWER 4 OF 22 HCA COPYRIGHT 2005 ACS on STN
141:357771 Organic **electroluminescent** devices with high luminance and good stability. Seki, Mieko; Yoneyama, Hiroto; Okuda, Daisuke; Hirose, Eiichi; Ozaki, Tadayoshi; Agata, Takeshi; Ishii, Toru; Mashimo, Kiyokazu; Sato, Katsuhiro (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004288531 A2 20041014, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-80982 20030324.
GI



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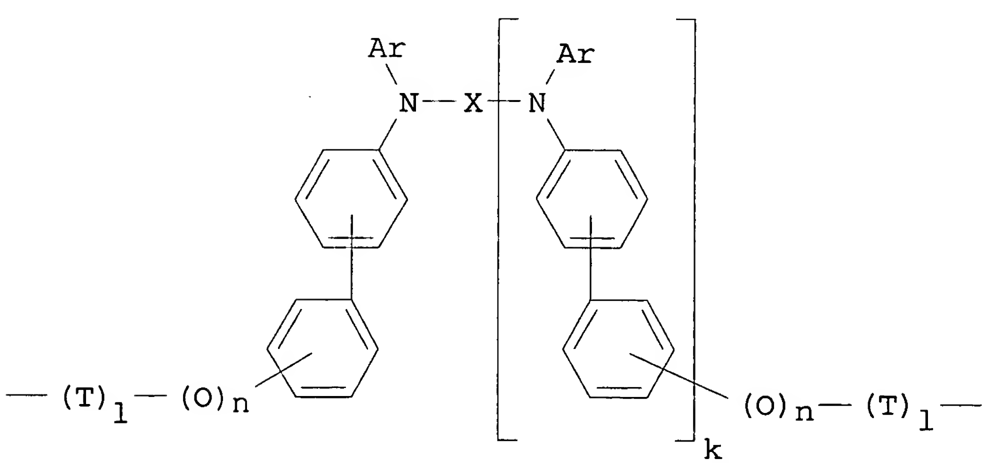


II

AB The devices have, between **anodes** and **cathodes** [.gtoreq.1 of which are (semi)transparent], multiple org. layers wherein .gtoreq.1 layers contain charge-transporting polyesters having I and/or II structures [Ar = monovalent arom. heterocyclic ring, (arom. heterocyclic ring-contg.) arom group; X = Q1, Q2, Q3;

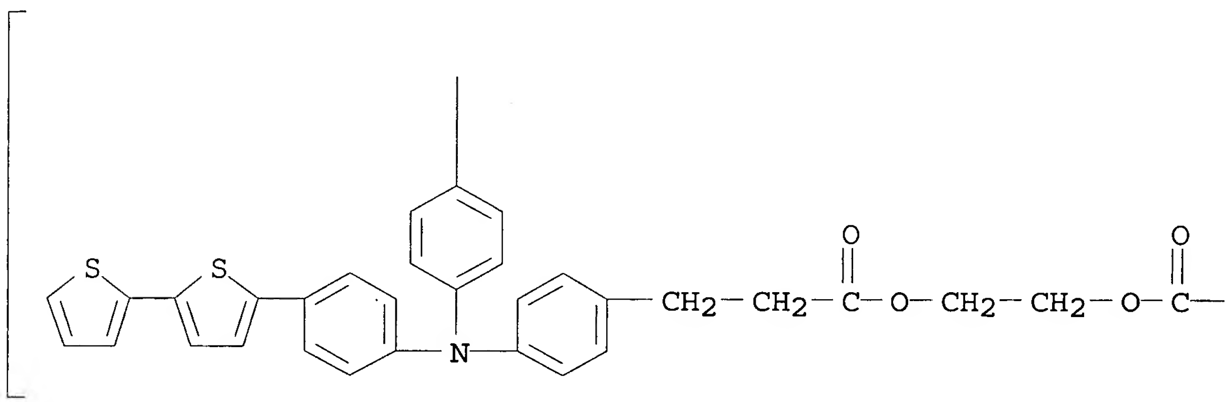
R3 = H, C1-4 alkyl, Ph, aralkyl; R10 = H, C1-4 alkyl(oxy), Ph, aralkyl, halo; a, a' = 0, 1; b = 0-10; V = C(CH3)2, O, S, C(CF3)2, etc.; k, n, l = 0, 1; T = C1-6 linear hydrocarbylene, C2-10 branched hydrocarbylene]. Thickness of the org. layers can be relatively large, allowing large-area devices without pinholes.

IT **775324-01-1 775324-04-4**
(assumed monomers, charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)

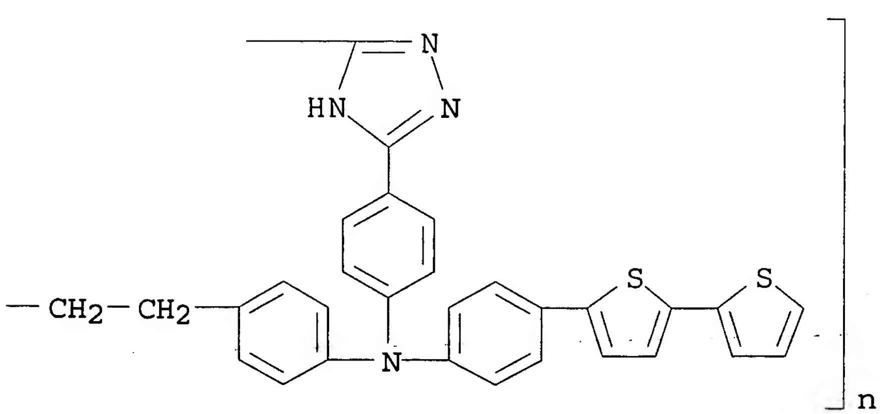
RN 775324-01-1 HCA

CN Poly[4H-1,2,4-triazole-3,5-diyl-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



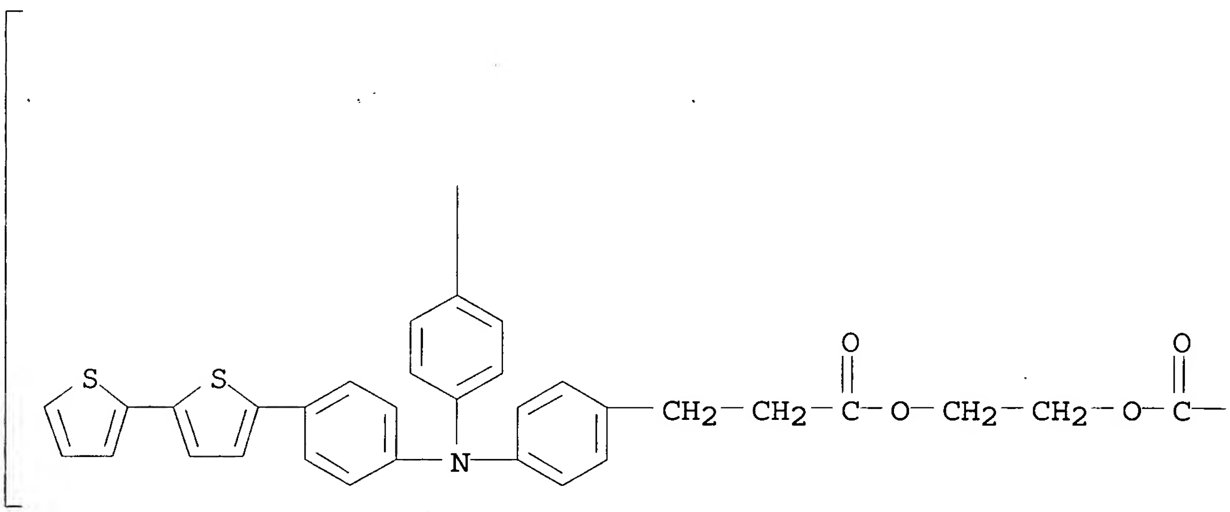
PAGE 1-B



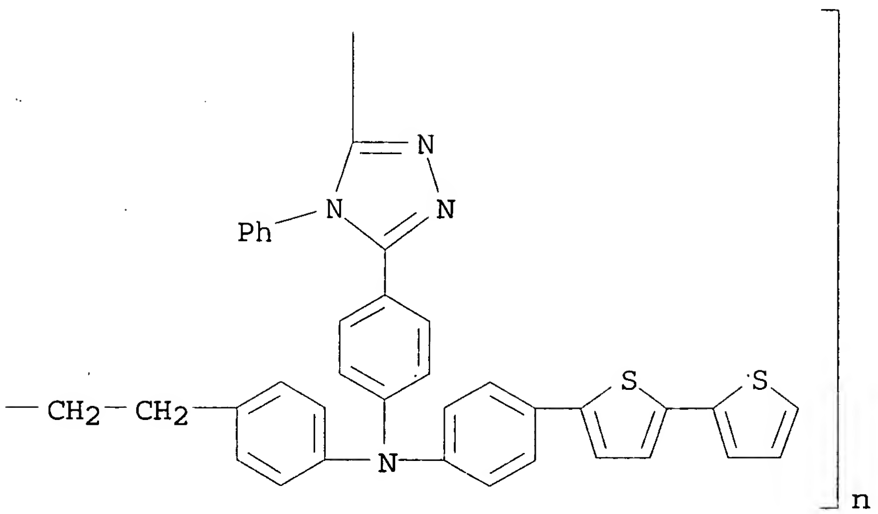
RN 775324-04-4 HCA

CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

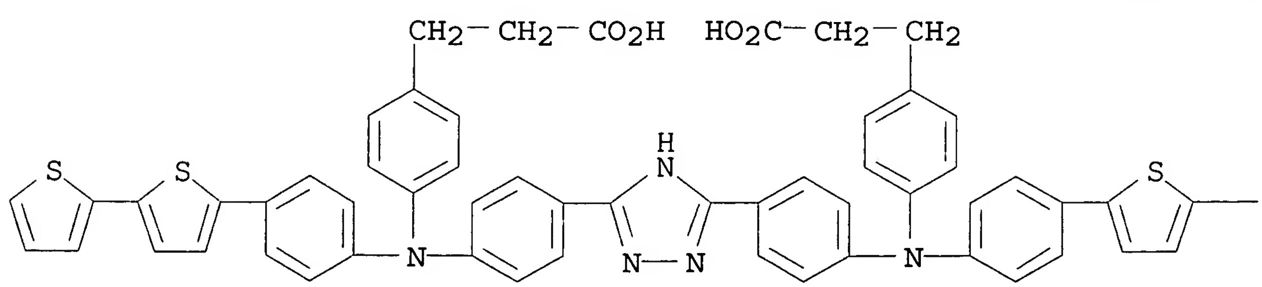


IT **775324-00-0**
(charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
RN 775324-00-0 HCA
CN Benzenepropanoic acid, 4,4'-[1H-1,2,4-triazole-3,5-diylbis[4,1-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]]]bis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

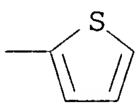
CM 1

CRN 775323-99-4
CMF C60 H45 N5 O4 S4

PAGE 1-A



PAGE 1-B



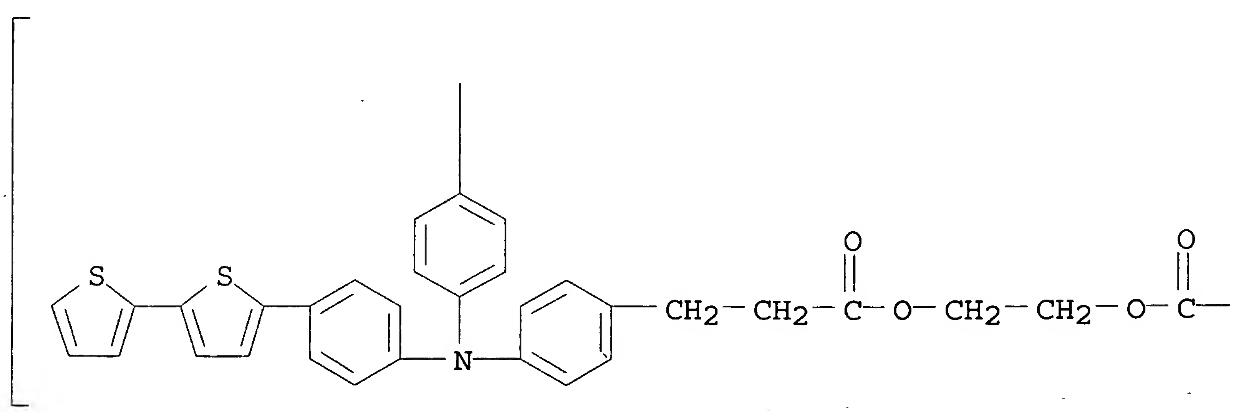
CM 2

CRN 107-21-1
CMF C2 H6 O2

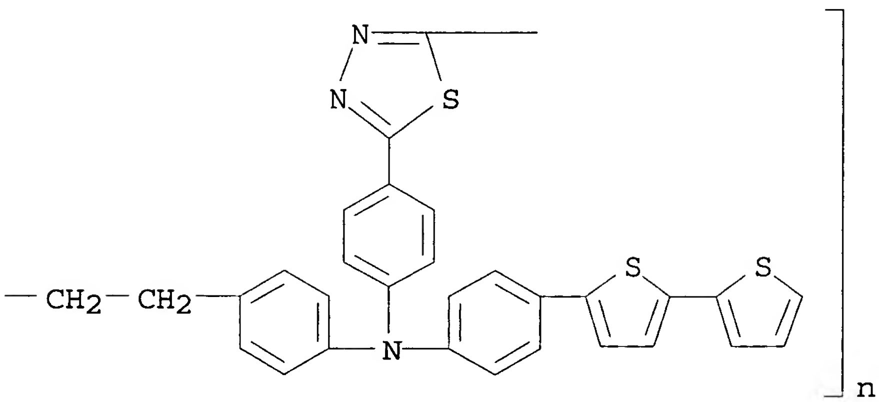
$HO-CH_2-CH_2-OH$

IT **775323-95-0P 775323-98-3P**
(charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
RN 775323-95-0 HCA
CN Poly[1,3,4-thiadiazole-2,5-diyl-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

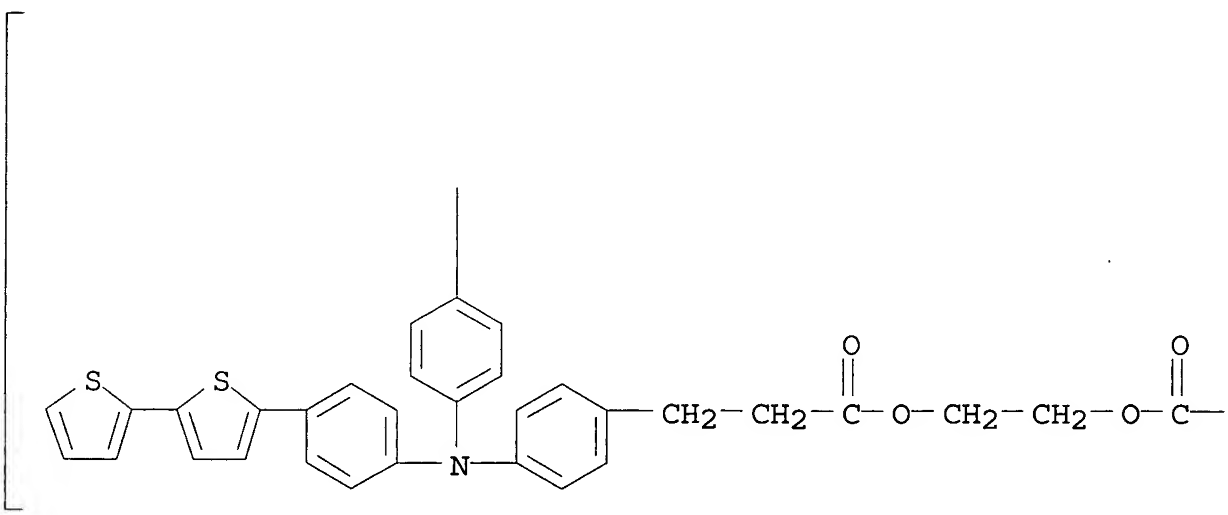


PAGE 1-B

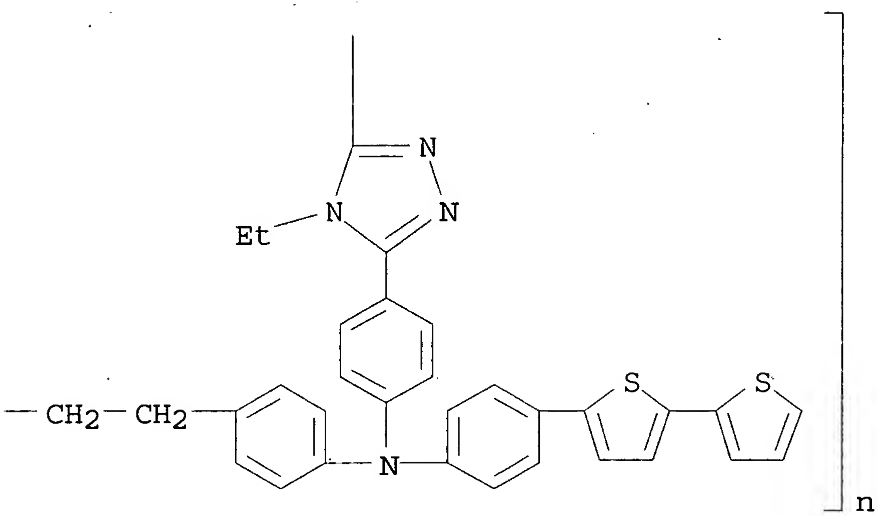


RN 775323-98-3 HCA
CN Poly[(4-ethyl-4H-1,2,4-triazole-3,5-diyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,4-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 775323-94-9P 775323-97-2P
(comprised of actual and assumed monomers, charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)

RN 775323-94-9 HCA

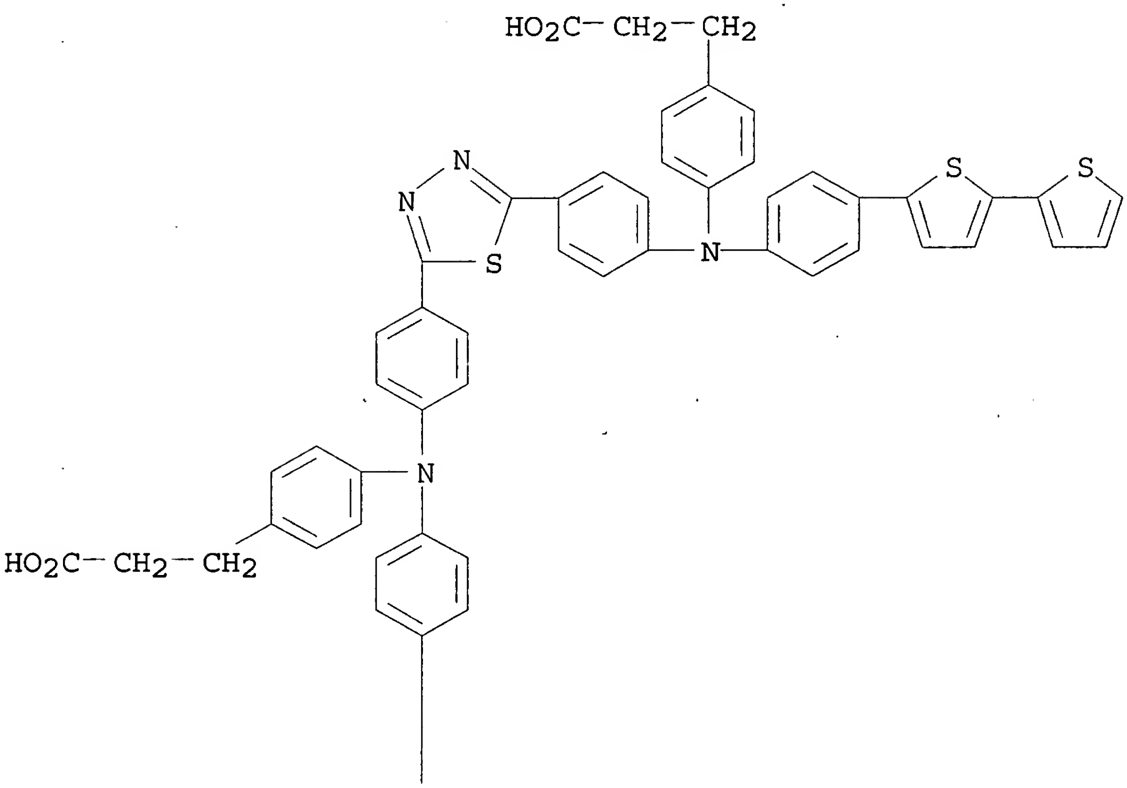
CN Benzenepropanoic acid, 4,4'-[1,3,4-thiadiazole-2,5-diylbis[4,1-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]]]bis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

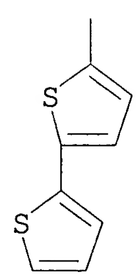
CRN 775323-93-8

CMF C60 H44 N4 O4 S5

PAGE 1-A



PAGE 2-A



CM 2

CRN 107-21-1
CMF C2 H6 O2

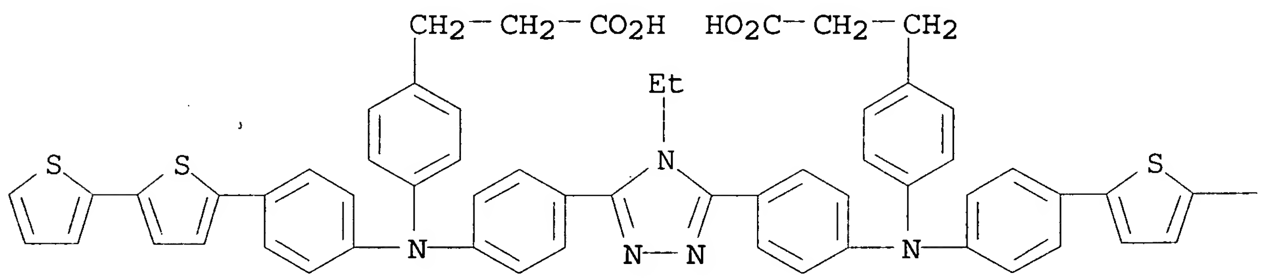
HO— CH_2— CH_2— OH

RN 775323-97-2 HCA
CN Benzenepropanoic acid, 4,4'-[(4-ethyl-4H-1,2,4-triazole-3,5-diyl)bis[4,1-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]]]bis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

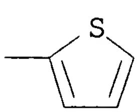
CM 1

CRN 775323-96-1
CMF C62 H49 N5 O4 S4

PAGE 1-A



PAGE 1-B



CM 2

CRN 107-21-1
CMF C2 H6 O2

HO— CH_2— CH_2— OH

IT **775324-03-3**

(org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)

RN 775324-03-3 HCA

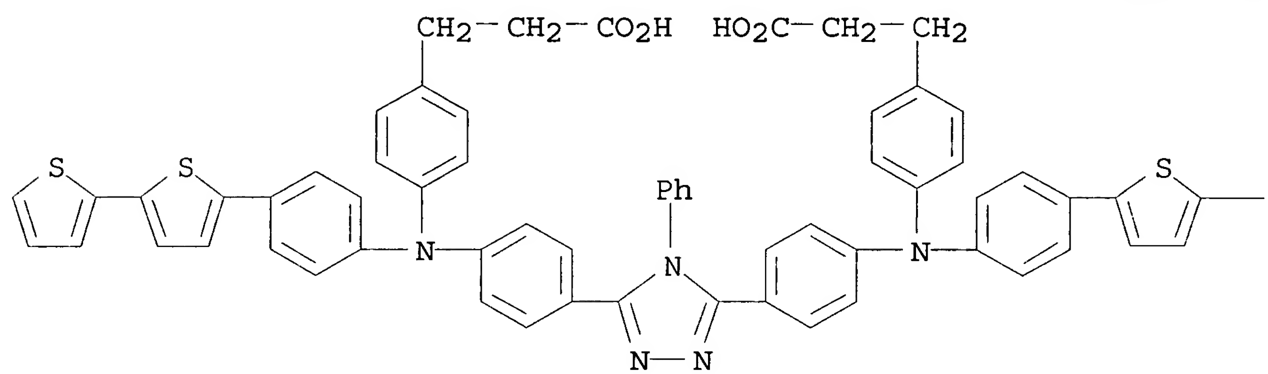
CN Benzenepropanoic acid, 4,4'-[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)bis[4,1-phenylene[(4-[2,2'-bithiophen]-5-ylphenyl)imino]]]bis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

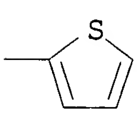
CRN 775324-02-2

CMF C66 H49 N5 O4 S4

PAGE 1-A



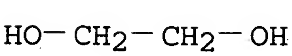
PAGE 1-B



CM 2

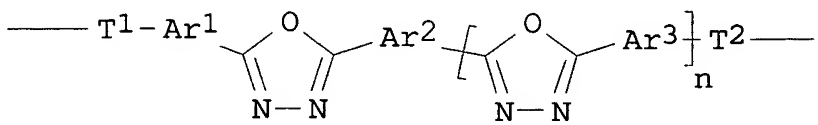
CRN 107-21-1

CMF C2 H6 O2



IC ICM H05B033-22
ICS C08G063-672; H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST org **EL** device charge transporting polyester; thiadiazole triazole polyester charge transporter **electroluminescent** device
IT Polyesters, uses
(charge-transporting; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **Electroluminescent** devices
(org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **775324-01-1 775324-04-4**
(assumed monomers, charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **775324-00-0**
(charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **775323-95-0P 775323-98-3P**
(charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **775323-94-9P 775323-97-2P**
(comprised of actual and assumed monomers, charge transporters; org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT 2085-33-8, Alq3
(**luminescent** compds.; **org. electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)
IT **775324-03-3**
(org. **electroluminescent** devices with high luminance and good stability contg. charge-transporting polyesters)

L73 ANSWER 5 OF 22 HCA COPYRIGHT 2005 ACS on STN
141:90119 Polyester resin, functional device and organic **electroluminescent** device using polyester resin, and method of manufacturing organic **electroluminescent** device.
Iwasaki, Masahiro; Nukada, Katsumi (Fuji Xerox Co., Ltd, Japan).
U.S. Pat. Appl. Publ. US 2004126616 A1 20040701, 53 pp. (English).
CODEN: USXXCO. APPLICATION: US 2003-631716 20030801. PRIORITY: JP 2002-365413 20021217.
GI



I

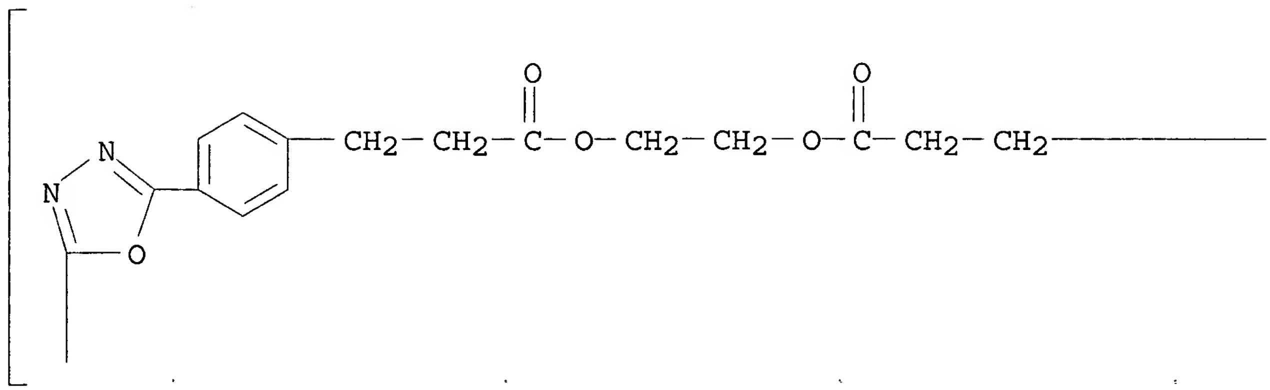
AB A polyester resin is described comprising at least one repeating unit represented by the general formula I, wherein Ar1, Ar2, and Ar3 independently represent a (un)substituted arylene group, a (un)substituted bivalent heterocyclic group; T1 and T2 represent a linear or branched bivalent hydrocarbon group having 1 to 10 carbon atoms; and n = 0, or 1. An org. **electroluminescent** device is also described comprising a pair of electrodes composed of an **anode** and a **cathode**, at least one of which is transparent or translucent; and at least one org. compd. layer that is sandwiched between the electrodes and contains at least one kind of the polyester resin. A method of fabricating the org. **electroluminescent** device is also described entailing forming at least one org. compd. layer on a surface of an electrode; and forming a counter electrode on a surface of the at least one org. compd. layer, wherein at least one kind of the polyester resin is used to form at least one layer of the at least one org. compd. layer in the step of forming the at least one org. compd. layer.

IT **714966-18-4P 714966-19-5P 714966-22-0P 714966-24-2P 714966-26-4P 714966-28-6P 714966-30-0P**
(electron transporting layer; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)

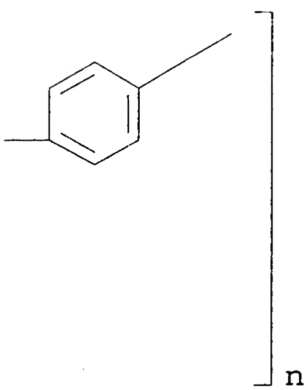
RN 714966-18-4 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

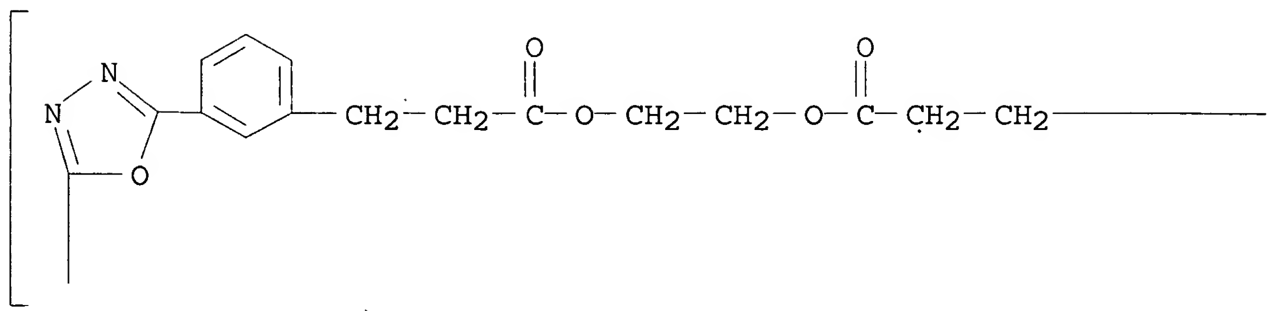


PAGE 1-B

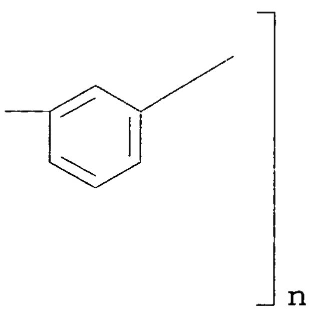


RN 714966-19-5 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,3-phenylene(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyloxy(1-oxo-1,3-propanediyl)-1,3-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

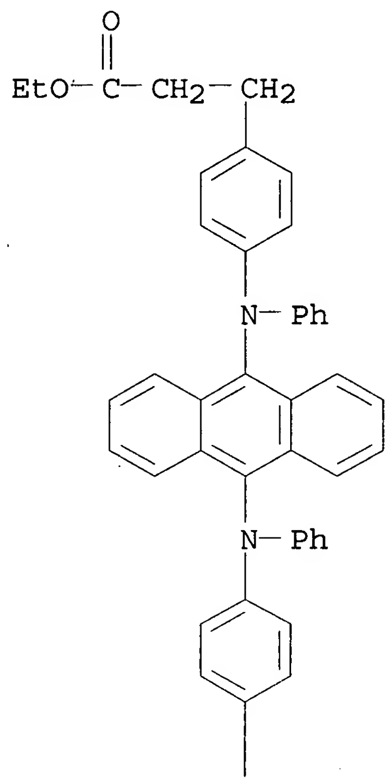


RN 714966-22-0 HCA
CN Benzenepropanoic acid, 4,4'-[9,10-anthracenediylbis(phenylimino)]bis-, diethyl ester, polymer with dimethyl 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis[benzenepropanoate] (9CI) (CA INDEX NAME)

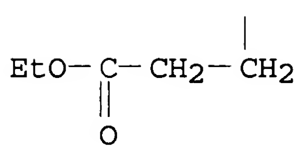
CM 1

CRN 714966-21-9
CMF C48 H44 N2 O4

PAGE 1-A

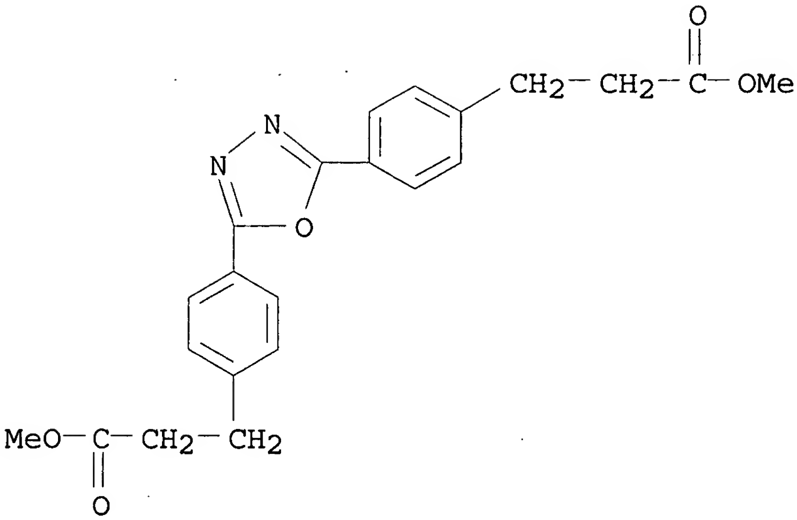


PAGE 2-A



CM 2

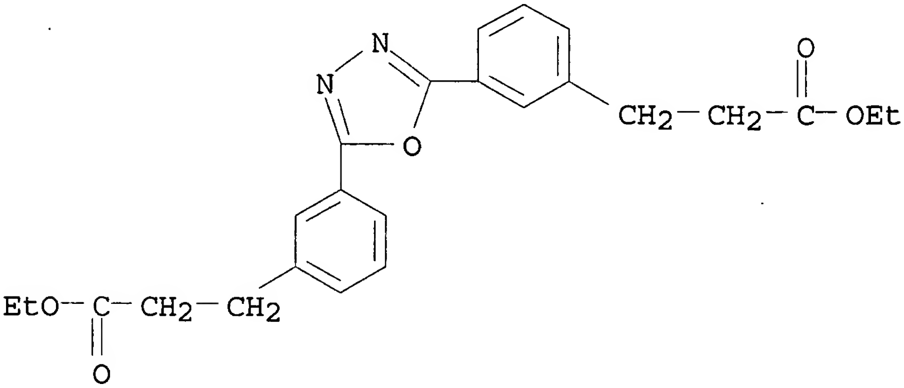
CRN 714966-20-8
CMF C22 H22 N2 O5



RN 714966-24-2 HCA
CN Benzenepropanoic acid, 3,3'-(1,3,4-oxadiazole-2,5-diyl)bis-, diethyl ester, polymer with dimethyl 4,4'-[[1,1':4',1''-terphenyl]-4,4''-diylbis[(3,4-dimethylphenyl)imino]]bis[benzenepropanoate] (9CI) (CA INDEX NAME)

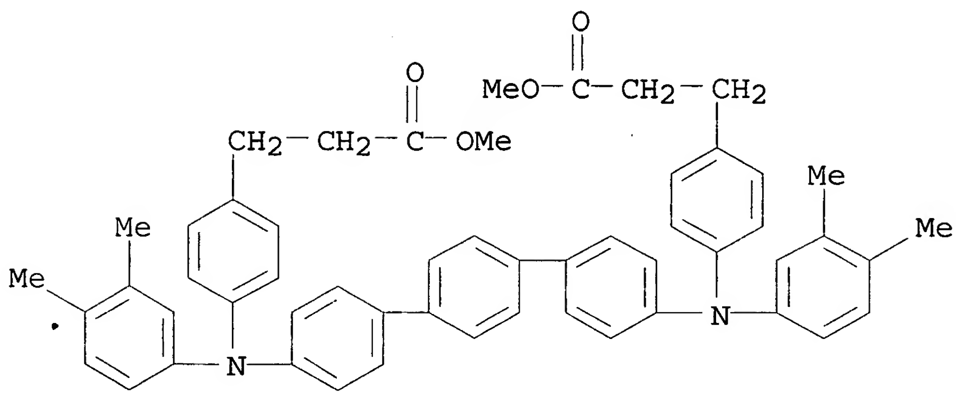
CM 1

CRN 714966-23-1
CMF C24 H26 N2 O5



CM 2

CRN 174406-13-4
CMF C54 H52 N2 O4

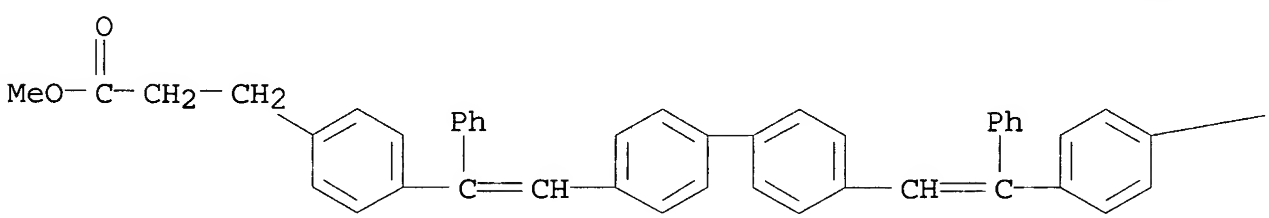


RN 714966-26-4 HCA
CN Benzenepropanoic acid, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(1-phenyl-2,1-ethenediyl)]bis-, dimethyl ester, polymer with diethyl 3,3'-(1,3,4-oxadiazole-2,5-diyl)bis[benzenepropanoate] (9CI) (CA INDEX NAME)

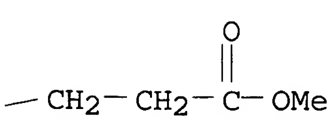
CM 1

CRN 714966-25-3
CMF C48 H42 O4

PAGE 1-A

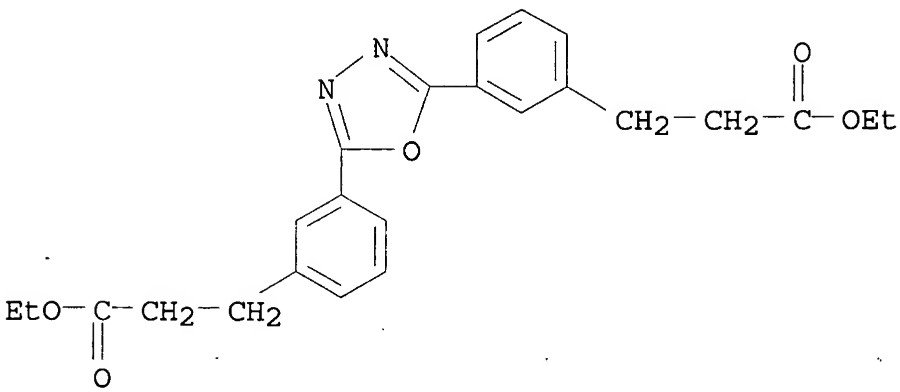


PAGE 1-B



CM 2

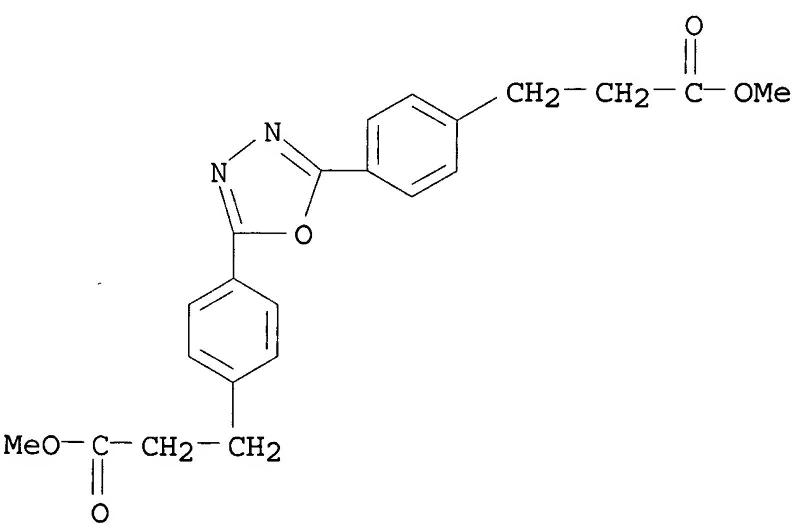
CRN 714966-23-1
CMF C24 H26 N2 O5



RN 714966-28-6 HCA
CN Benzenepropanoic acid, 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis-, dimethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

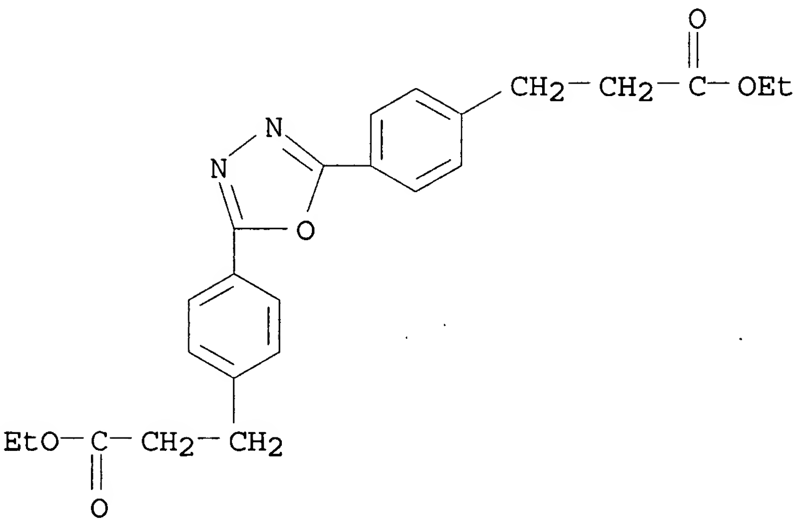
CRN 714966-20-8
CMF C22 H22 N2 O5



RN 714966-30-0 HCA
CN Benzenepropanoic acid, 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis-, diethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 714966-29-7
CMF C24 H26 N2 O5



IC ICM H05B033-12
ICS C09K011-06; C08G063-685
INCL 428690000; 428917000; 313504000; 313506000; 427066000; 257040000; 528272000; 528423000
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 73, 76
ST polyester resin functional device org **electroluminescent** device
IT **Electroluminescent** devices
Semiconductor device fabrication
(polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)
IT Polyesters, uses
(polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)
IT 50926-11-9, Indium tin oxide
(electrode; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)
IT 25067-59-8, Polyvinylcarbazole
(electron transporting layer; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)
IT 171103-85-8P **714966-18-4P 714966-19-5P 714966-22-0P 714966-24-2P 714966-26-4P**

714966-27-5P **714966-28-6P** **714966-30-0P**
714966-31-1P 714966-32-2P 714966-33-3P
(electron transporting layer; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)

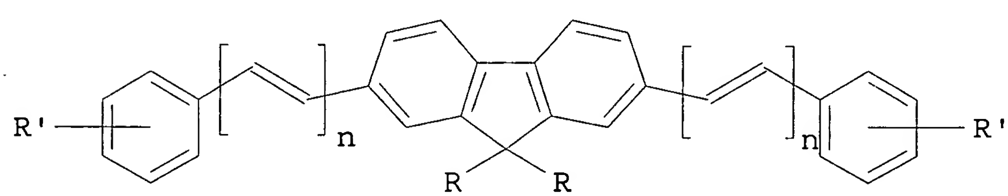
IT 123847-85-8, .alpha.-NPD
(hole transporting material; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)

IT 2085-33-8, Alq3
(**light emitting** material; polyester resin, functional device and org. **electroluminescent** device using polyester resin as electron transporting layer)

L73 ANSWER 6 OF 22 HCA COPYRIGHT 2005 ACS on STN

138:229328 Fluorene compounds, their polymers, their polymer salts, and **EL** devices using the compounds or the polymers. Cho, Hyun-nam; Chung, Sung-hyun; Song, Sang-won (Korea Institute of Science and Technology, S. Korea). Jpn. Kokai Tokkyo Koho JP 2003064003 A2 20030305, 44 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-148236 20020522. PRIORITY: KR 2001-28020 20010522.

GI



I

AB The fluorene compds. are represented by I (R = H, C1-22 aliph. or alicyclic alkyl, alkoxy, C6-18 aryl, aryloxy, alkyl or aryl substituted with .gtoreq.1 Si, Sn, Ge; R1 = ether, ester, amino, amido, imido, formyl, ketone, sulfone, sulfido, NO2, cyano, ethynyl, halo, CO2H, boric acid, vinyl, hydrazido, isocyanato, carbamoyl, carbonate, CH2Cl, OH, anhydride, cyanato, azomethine, quinoline oxadiazole, azo; R1 is on m- or p-position n = 0, 1). Polymers of I, copolymers of I with other compds., and acid addn. salts of the (co)polymers are also claimed. The **EL** devices comprising **cathode**, luminescent layer, **anode** or **cathode**, hole transport layer, fluorescent layer, and **anode** use .gtoreq.1 of I, their (co)polymers, and their (co)polymer salts as luminescent materials of the luminescent layer.

IT **501026-26-2P 501026-28-4P 501026-34-2P**
501026-41-1P 501026-43-3P 501026-54-6P
501026-55-7P 501026-56-8P 501026-57-9P
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

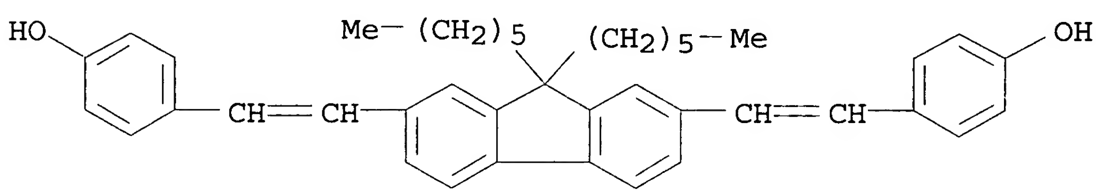
RN 501026-26-2 HCA

CN Phenol, 4,4'-[(9,9-dihexyl-9H-fluorene-2,7-diyl)di-2,1-ethenediyl]bis-, polymer with 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 270252-32-9

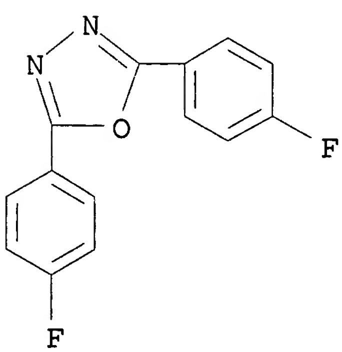
CMF C41 H46 O2



CM 2

CRN 324-81-2

CMF C14 H8 F2 N2 O



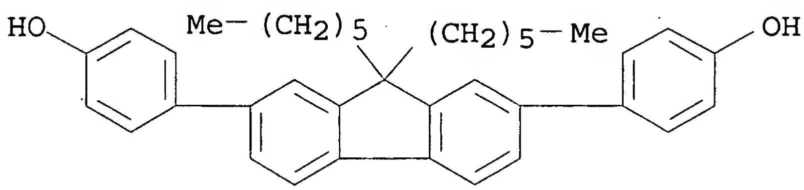
RN 501026-28-4 HCA

CN Phenol, 4,4'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

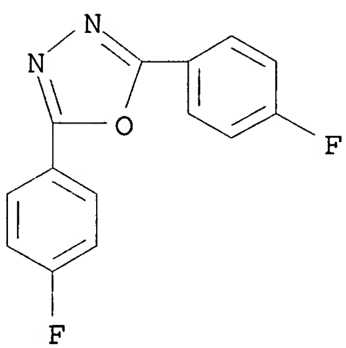
CRN 501025-82-7

CMF C37 H42 O2



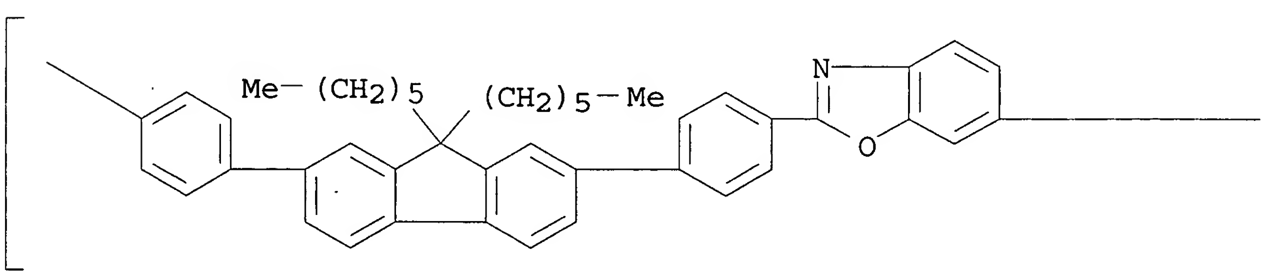
CM 2

CRN 324-81-2
CMF C14 H8 F2 N2 O

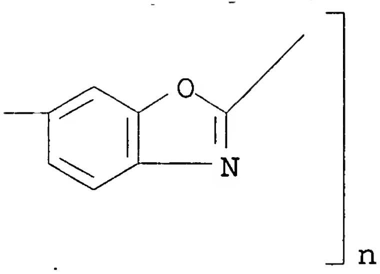


RN 501026-34-2 HCA
CN Poly[[6,6'-bibenzoxazole]-2,2'-diyl-1,4-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

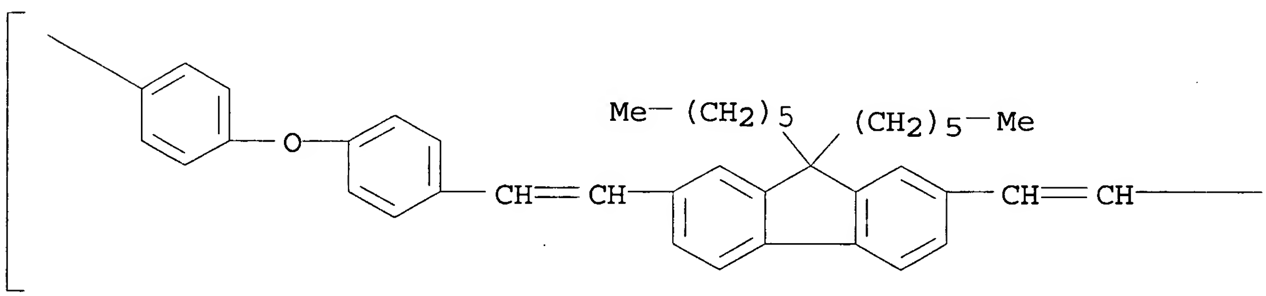


PAGE 1-B

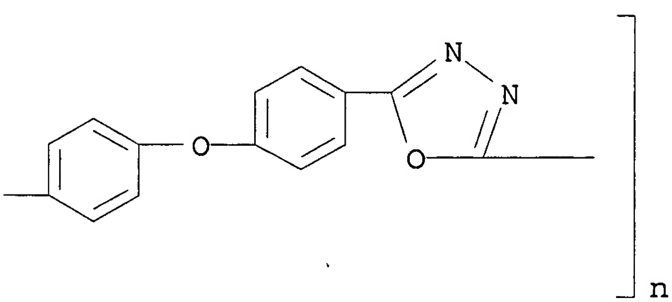


RN 501026-41-1 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

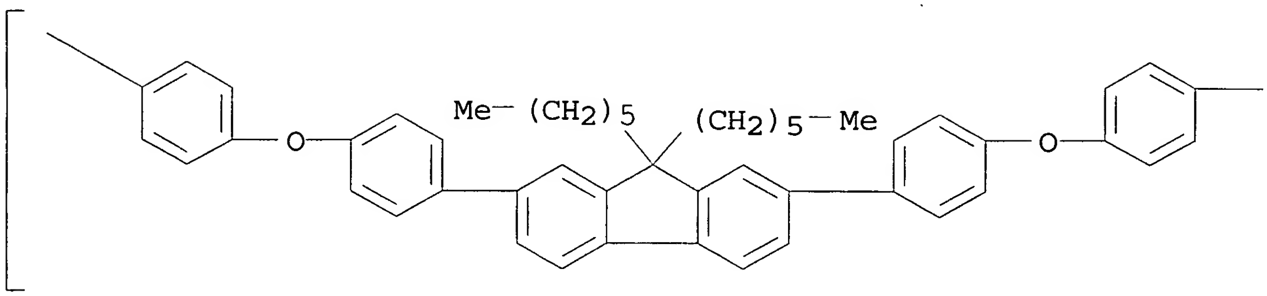


PAGE 1-B

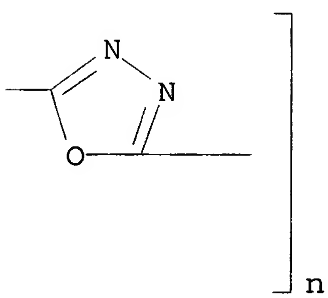


RN 501026-43-3 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A

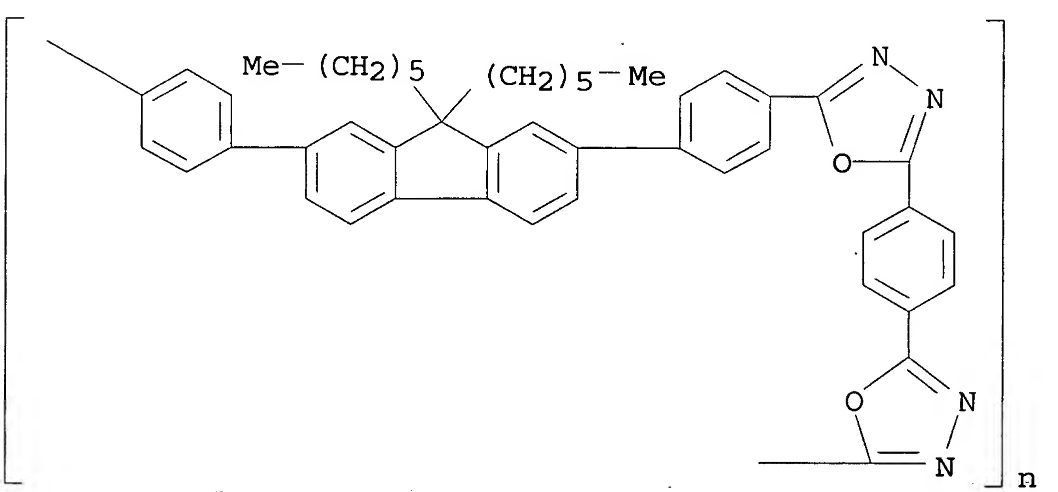


PAGE 1-B



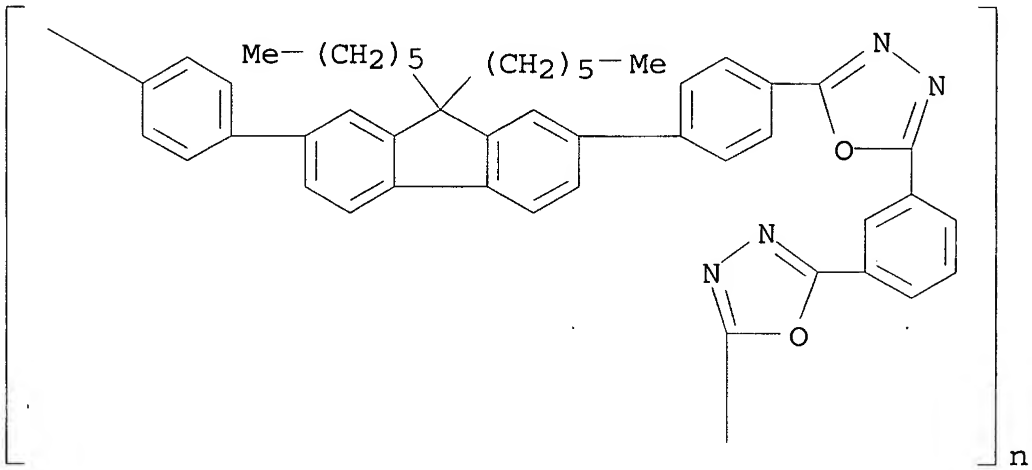
RN 501026-54-6 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-1,4-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

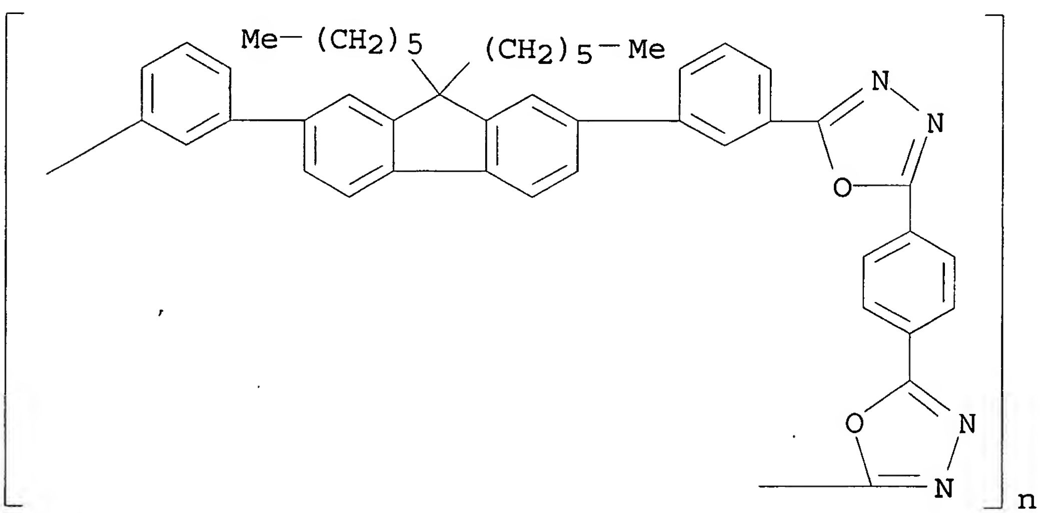


RN 501026-55-7 HCA

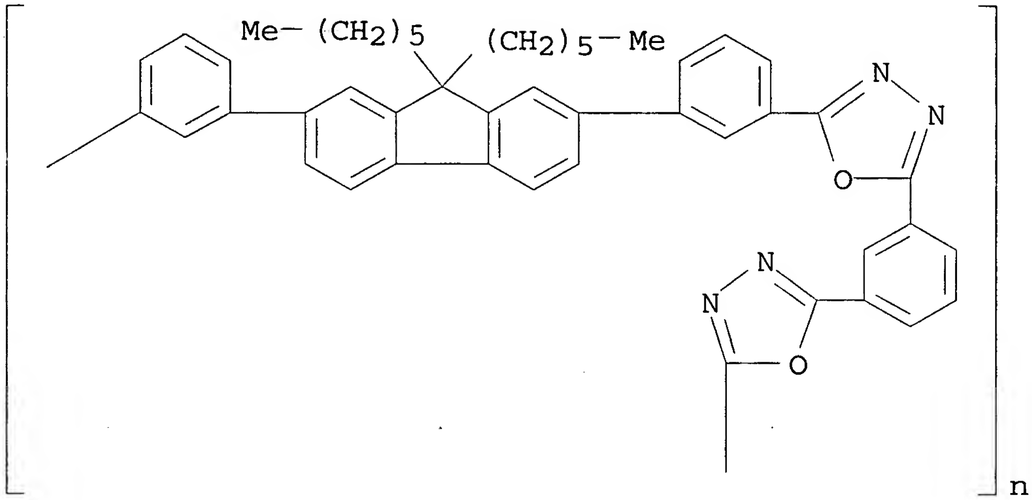
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,3-phenylene-1,3,4-oxadiazole-2,5-diyl-1,4-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 501026-56-8 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene-1,3,4-oxadiazole-2,5-diyl-1,3-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,3-phenylene] (9CI) (CA INDEX NAME)



RN 501026-57-9 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,3-phenylene-1,3,4-oxadiazole-2,5-diyl-1,3-phenylene(9,9-dihexyl-9H-fluorene-2,7-diyl)-1,3-phenylene] (9CI) (CA INDEX NAME)



IC ICM C07C013-547
ICS C07C022-04; C07C025-22; C07C033-36; C07C039-17; C07C043-21; C07C047-546; C07C047-575; C07C049-784; C07C053-44; C07C063-49; C07C069-76; C07C205-06; C07C205-35; C07C205-38; C07C211-50; C07C217-80; C07C217-90; C07C243-38; C07C255-33
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 24, 38
ST diphenylfluorene prepn **electroluminescent** device; aminophenylfluorene isophthalaldehyde copolymer salt **electroluminescent** device
IT Luminescent substances
(**electroluminescent**; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)
IT Polyethers, preparation
Polyimides, preparation
(fluorine-contg.; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)
IT Fluoropolymers, preparation
Polyimides, preparation
Polyoxadiazoles
Polyquinolines
(polyether-; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)
IT Fluoropolymers, preparation
Polyethers, preparation
(polyimide-; prepn. of bis(substituted Ph or styryl)fluorenes,

their polymers, and their polymer salts for **electroluminescent** devices)

IT Polyethers, preparation
(polyoxadiazole-; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT Polyethers, preparation
(polyquinoline-; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT **Electroluminescent** devices
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT Polyamides, preparation
Polyazomethines
Polybenzoxazoles
Polyesters, preparation
Polyethers, preparation
Polyhydrazides
Polyketones
Polyoxadiazoles
Polysulfones, preparation
Polythioethers
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT 25067-59-8, Poly(vinylcarbazole) 104934-50-1, Poly(3-hexylthiophene) 120389-25-5
(blends; prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT 100-13-0, 4-Nitrostyrene 350-46-9, 1-Fluoro-4-nitrobenzene 405-99-2, 4-Fluorostyrene 459-57-4, 4-Fluorobenzaldehyde 586-39-0, 3-Nitrostyrene 586-78-7, 4-Bromonitrobenzene 932-77-4, 3-Bromobenzyl chloride 1122-91-4, 4-Bromobenzaldehyde 2156-04-9 5720-05-8 5798-75-4, Ethyl-4-bromobenzoate 13331-27-6 16532-79-9, 4-Bromophenylacetonitrile 24398-88-7, Ethyl-3-bromobenzoate 128424-36-2 189367-54-2 285142-92-9 419568-27-7 501025-82-7 501025-98-5
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT 31643-49-9P 203927-98-4P 270252-32-9P 419568-25-5P
419568-29-9P 434504-73-1P 501025-66-7P 501025-67-8P
501025-68-9P 501025-69-0P 501025-70-3P 501025-71-4P
501025-72-5P 501025-73-6P 501025-74-7P 501025-75-8P
501025-76-9P 501025-77-0P 501025-78-1P 501025-79-2P

501025-80-5P 501025-81-6P 501025-83-8P 501025-84-9P
501025-85-0P 501025-86-1P 501025-87-2P 501025-88-3P
501025-89-4P 501025-90-7P 501025-91-8P 501025-92-9P
501025-93-0P 501025-94-1P 501025-95-2P 501025-96-3P
501025-97-4P 501025-99-6P 501026-00-2P 501026-01-3P
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

IT 288-99-3DP, 1,3,4-Oxadiazole, derivs., polymers 352354-19-9P
434504-78-6P 434504-83-3P 501026-02-4P 501026-03-5P
501026-04-6P 501026-05-7P 501026-06-8P 501026-07-9P
501026-08-0P 501026-09-1P 501026-10-4P 501026-11-5P
501026-12-6P 501026-13-7P 501026-14-8P 501026-15-9P
501026-16-0P 501026-17-1P 501026-18-2P 501026-19-3P
501026-20-6P 501026-21-7P 501026-22-8P 501026-23-9P
501026-24-0P 501026-25-1P **501026-26-2P** 501026-27-3P
501026-28-4P 501026-29-5P 501026-30-8P 501026-31-9P
501026-32-0P 501026-33-1P **501026-34-2P** 501026-35-3P
501026-36-4P 501026-37-5P 501026-38-6P 501026-39-7P
501026-40-0P **501026-41-1P** 501026-42-2P
501026-43-3P 501026-44-4P 501026-45-5P 501026-46-6P
501026-47-7P 501026-48-8P 501026-49-9P 501026-50-2P
501026-51-3P 501026-52-4P 501026-53-5P **501026-54-6P**
501026-55-7P **501026-56-8P** **501026-57-9P**
501026-58-0P
(prepn. of bis(substituted Ph or styryl)fluorenes, their polymers, and their polymer salts for **electroluminescent** devices)

L73 ANSWER 7 OF 22 HCA COPYRIGHT 2005 ACS on STN

138:212568 Organic **electroluminescent** device and method of its preparation. Kambe, Emiko; Shinkai, Masahiro (TDK Corporation, Japan). Eur. Pat. Appl. EP 1285957 A2 20030226, 38 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-18381 20020814. PRIORITY: JP 2001-249456 20010820; JP 2001-253409 20010823; JP 2002-76430 20020319.

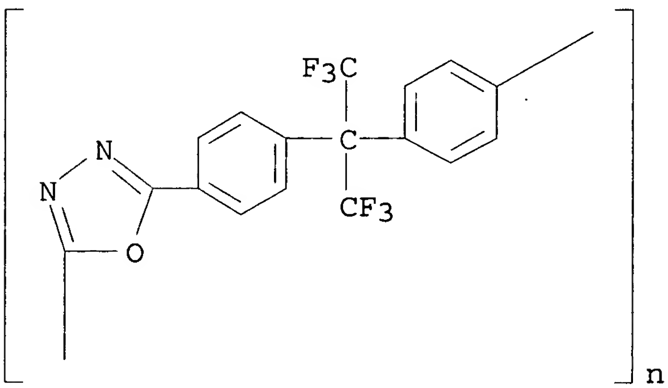
AB Org. **electroluminescent** devices comprising a **cathode**, an **anode**, and .gtoreq.2 stacked org. layers,including a **light emitting** layer, between the electrodes are described in which .gtoreq.1 layer of the org. layers is formed by coating, in which the org. layer disposed close to the **cathode** is an electron injecting org. layer contg. .gtoreq.1 compd. selected from org. metal salts and org. metal complexes of a metal having a std. **electrode** potential more **neg.** than -1.8 V at 25.degree. and formed by coating, and an org. layer contg. a high mol. wt. **electroluminescent**

material is disposed close to the electron injecting org. layer on the **cathode** side. Methods for fabricating the devices entailing using coating solns. formed using specified solvents are also described.

IT **26916-42-7**
(org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

RN 26916-42-7 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylene] (9CI) (CA INDEX NAME)



IC ICM C09K011-06
ICS H05B033-14; H01L051-20

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST org **electroluminescent** device layer coating fabrication

IT Polysiloxanes, uses
(SR 2102; org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT Coating process
Electroluminescent devices
Semiconductor device fabrication
(org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT Poly(arylenealkenylenes)
(poly(terphenylene vinylene) derivs.; org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT 13043-47-5 499977-06-9
(oligomers; org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT 7429-90-5, Aluminum, uses 7440-22-4, Silver, uses
(org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT 543-80-6, Barium acetate 555-75-9, Aluminum triethoxide 638-38-0, Manganese acetate 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 2914-17-2, Calcium ethoxide 3504-40-3, Samarium isopropoxide 12084-29-6, Bis(acetylacetonato)barium, uses 15086-27-8, Aluminum triphenoxide 15435-71-9, Sodium acetylacetonate, uses 19372-44-2, Bis(acetylacetonato)calcium, uses 19393-11-4, Potassium acetylacetonate, uses 23519-77-9, Tetrapropoxyzirconium 25233-34-5, Polythiophene 25233-34-5D, Polythiophene, derivs. 25387-93-3, (8-Quinolinolato)lithium 26009-24-5, Poly(p-phenylene vinylene) 26009-24-5D, Poly(p-phenylene vinylene), derivs. **26916-42-7** 36501-19-6 66280-99-7, Poly(thienylene vinylene) 66280-99-7D, Poly(thienylene vinylene), derivs. 95270-88-5, Polyfluorene 95270-88-5D, Polyfluorene, derivs. 117149-05-0, Poly(naphthalenediyl-1,2-ethenediyl) 117149-05-0D, Poly(naphthalenediyl-1,2-ethenediyl), derivs. 117501-02-7 117501-02-7D, derivs. 150405-69-9 203806-96-6 210347-52-7 404372-11-8 499977-05-8
(org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

IT 110-80-5, Ethyl cellosolve 127-19-5, Dimethylacetamide
(org. **electroluminescent** devices with layers formed by coating processes and their fabrication)

L73 ANSWER 8 OF 22 HCA COPYRIGHT 2005 ACS on STN

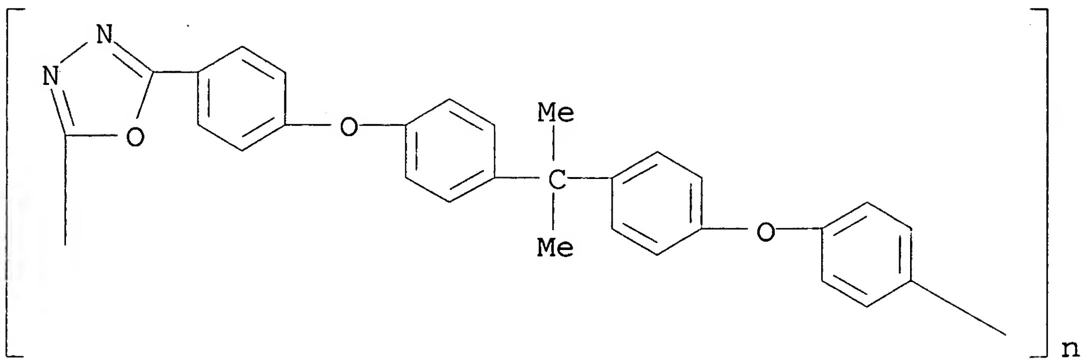
138:98000 Organic **electroluminescent** devices using polyfluorenylene derivatives in hole transporting layers. Tsuge, Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003007475 A2 20030110, 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-186892 20010620.

AB Title devices are formed between electrode layers of **anode** layer and **cathode** layer comprising an electron blocking layer (hole transporting layer) and a **light-emitting** layer; wherein, the electron blocking layer contains a polymer repeating unit -9R,9R-fluorenylene- [R = H, aliph./arom. hydrocarbyl, ether and heterocyclyl]. The devices offer higher luminous efficiency.

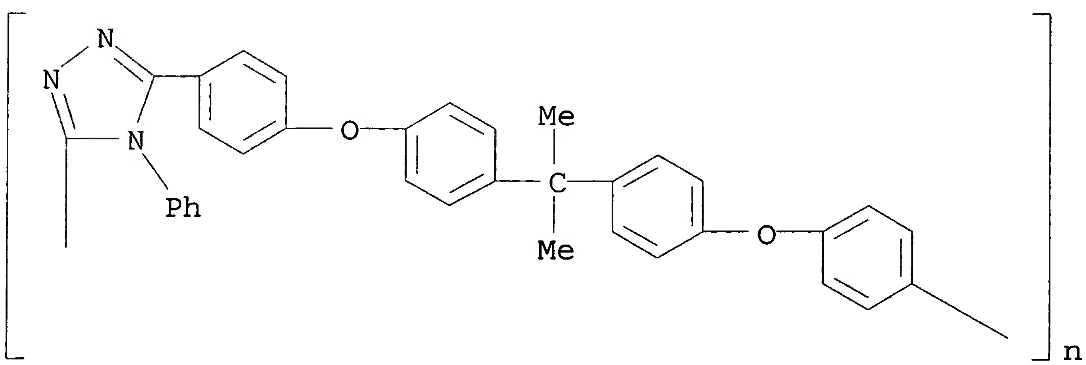
IT **31694-04-9 146847-06-5 187877-28-7 428865-68-3 477801-44-8 477801-50-6 483306-57-6**
(org. **electroluminescent** devices using polyfluorenylene derivs.)

RN 31694-04-9 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



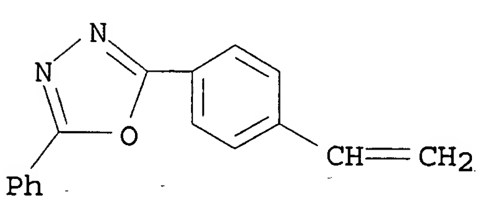
RN 146847-06-5 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylene] (9CI) (CA INDEX NAME)



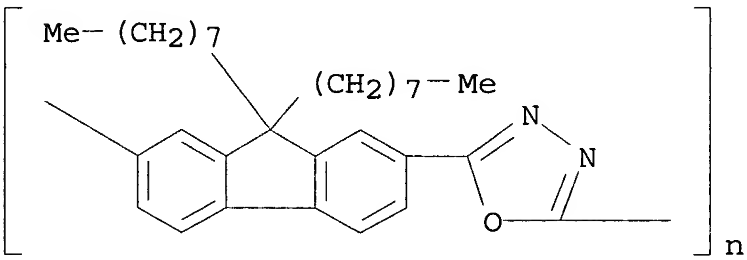
RN 187877-28-7 HCA
CN 1,3,4-Oxadiazole, 2-(4-ethenylphenyl)-5-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

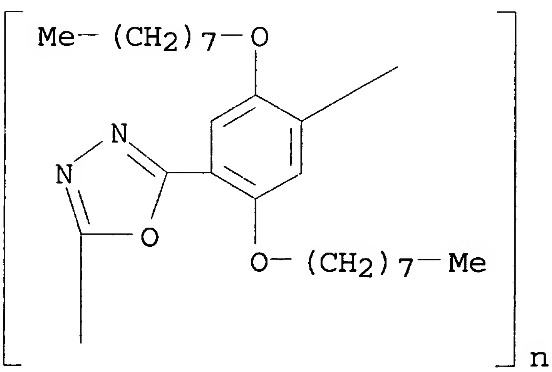
CRN 17252-75-4
CMF C16 H12 N2 O



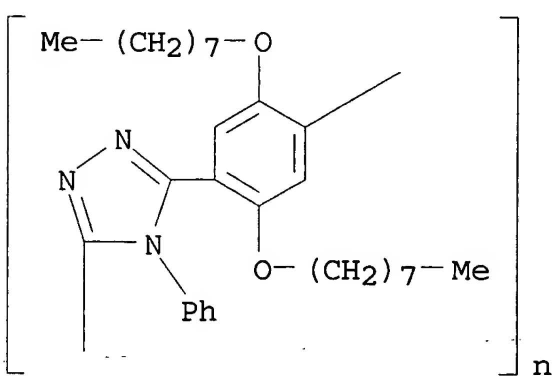
RN 428865-68-3 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(9,9-dioctyl-9H-fluorene-2,7-diyl)]
(9CI) (CA INDEX NAME)



RN 477801-44-8 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl[2,5-bis(octyloxy)-1,4-phenylene]]
(9CI) (CA INDEX NAME)



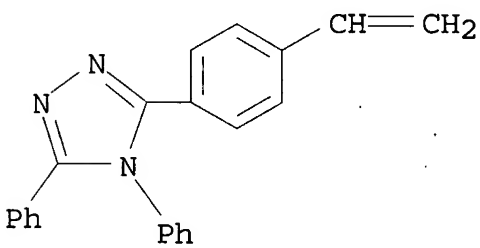
RN 477801-50-6 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)[2,5-bis(octyloxy)-1,4-
phenylene]] (9CI) (CA INDEX NAME)



RN 483306-57-6 HCA
CN 4H-1,2,4-Triazole, 3-(4-ethenylphenyl)-4,5-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 483306-56-5
CMF C22 H17 N3



IC ICM H05B033-22
ICS H05B033-22; H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 25
ST **electroluminescent** device polyfluorene deriv transporting
IT **Electroluminescent** devices
(polyfluorenylene derivs. for)
IT 147-14-8 725-12-2 905-62-4 1150-62-5 1484-12-4 2043-06-3 2085-33-8, Alq3 4733-39-5 15082-28-7 25067-59-8, Poly(N-vinylcarbazole) **31694-04-9** 38215-36-0 58328-31-7 90338-04-8 94928-86-6 95270-88-5D, Polyfluorene, derivs. 115558-41-3 138372-67-5 **146847-06-5** 148044-16-0 153838-48-3 163359-60-2 **187877-28-7** 286438-41-3, Poly(9,9-dibutyl-9H-fluorene-2,7-diyl) 286438-43-5, Poly(9,9-didecyl-9H-fluorene-2,7-diyl) 337526-85-9 337526-87-1 337526-88-2 337526-98-4 343978-78-9 343978-79-0 343978-94-9 **428865-68-3** 468732-33-4 468732-34-5 477801-34-6 **477801-44-8** **477801-50-6** **483306-57-6** 483306-62-3, Poly(9,9-dipentyl-9H-fluorene-2,7-diyl) 483306-63-4 483306-64-5 483306-65-6 483306-66-7 483306-67-8 483306-68-9
(org. **electroluminescent** devices using polyfluorenylene derivs.)

L73 ANSWER 9 OF 22 HCA COPYRIGHT 2005 ACS on STN
138:97944 Blue double layer devices obtained by spin-coating. Jousseaume, V.; Maindron, T.; Wang, Y.; Dodelet, J. P.; Lu, J.; Hlil, A. R.; Hay, A. S.; D'Iorio, M. (INRS-Energie et Materiaux, Varennes, QC, J3X 1S2, Can.). Thin Solid Films, 416(1-2), 201-207

(English) 2002. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science B.V..

AB Double spin-coated **electroluminescent** (**EL**) devices were fabricated by combining a blue **EL** arylamine-based hole transport polymer (STPD-QP) in the first spin-coated layer with a blue **EL** oxadiazole-based electron transport polymer (SP-OX) in the second layer. The STPD moiety is a deriv. of N,N'-diphenyl-N,N'-di(m-tolyl)-p-benzidine which is the **EL** component while the QP moiety is quaterphenyl whose function is to restrict soly. The luminance and efficiency of these devices were improved by adding PBD, a low mol. wt. electron transport oxadiazole deriv. as solute in the SP-OX layer. Max. luminance of .apprx.1500 cd/m2 and quantum efficiency up to 0.5% were obtained. Similar luminance was not reached when using only solid solns. of PBD in A435, a rather insulating host polymer.

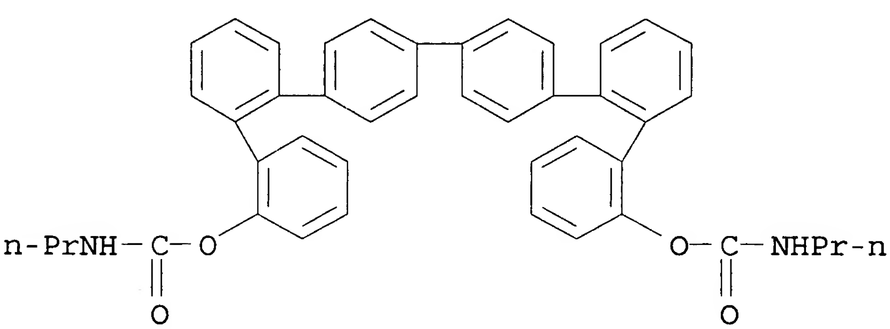
IT **360047-34-3 360047-35-4**
(electron transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)

RN 360047-34-3 HCA

CN Carbamic acid, propyl-, [1,1':2',1'':4'',1''':4''',1'''':2'''',1'''''-sexiphenyl]-2,2'''''-diyl ester, polymer with 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

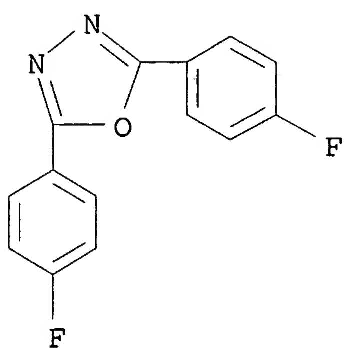
CM 1

CRN 360047-24-1
CMF C44 H40 N2 O4

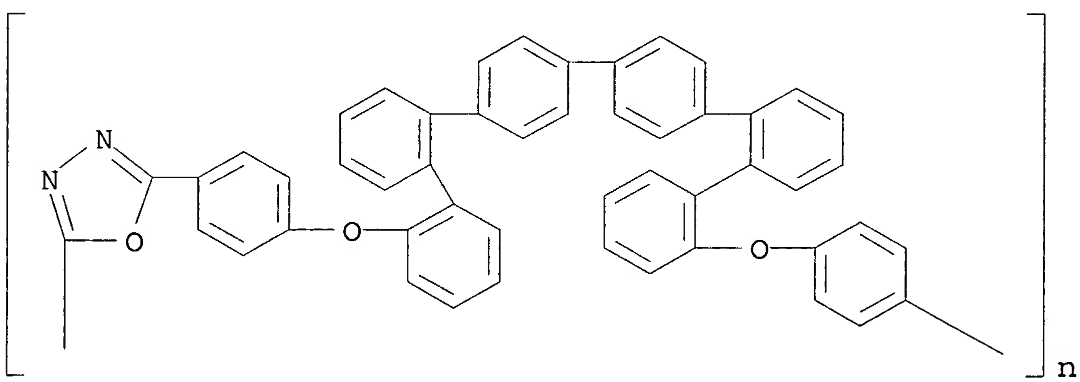


CM 2

CRN 324-81-2
CMF C14 H8 F2 N2 O



RN 360047-35-4 HCA
CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy[1,1':2',1'':4'',1''':4''',1'''':2'''',1'''''-sexiphenyl]-2,2'''''-diyloxy-1,4-phenylene) (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38
ST phenyltolyl benzidine quaterphenyl hole transport **electroluminescent** layer spin coating; oxadiazole electron transport layer **electroluminescent** device fabrication
IT **Electroluminescent** devices
Electronic device fabrication
Hole transport
(luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT Polysulfones, uses
(polyamine-polyether-, arom., phenyl-tolyl benzidine contg., hole transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)

IT Polyethers, uses
(polyamine-polysulfone-, arom., phenyl-tolyl benzidine contg., hole transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT Polyphenyls
(polyether-, oxadiazole-contg., electron transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT Polyamines
(polyether-polysulfone-, arom., phenyl-tolyl benzidine contg., hole transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT Polyethers, uses
(polyphenyl-, oxadiazole-contg., electron transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT Coating process
(spin; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT 50926-11-9, ITO
(**anode**; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT 7439-95-4, Magnesium, uses
(**cathode**; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT 15082-28-7, PBD
(electron transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)
IT **360047-34-3 360047-35-4**
(electron transport layer; luminance and quantum efficiency of blue double layer **EL** devices fabricated by spin-coating of benzidine-quaterphenyl-deriv. and oxadiazole-deriv. polymers)

L73 ANSWER 10 OF 22 HCA COPYRIGHT 2005 ACS on STN
135:310673 Organic **electroluminescent** devices. Sugiura, Hisanori; Hisada, Hitoshi; Sato, Tetsuya; Matsuo, Mikiko (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001284052 A2 20011012, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-101930 20000404.
AB The devices comprise: a pair of **anode** and a

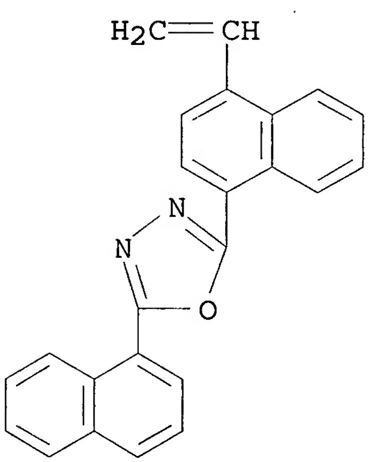
cathode interposing an org. laminate including a **light-emitting** layer contg. a copolymer of a 1st monomer having an electron transporting mol. and a 2nd monomer having a phosphor mol.

IT **366464-03-1 366464-06-4 366464-08-6 366464-19-9 366479-00-7**
(org. **electroluminescent** devices)

RN 366464-03-1 HCA
CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenyl-1-naphthalenyl)-5-(1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

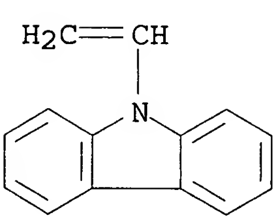
CM 1

CRN 366464-02-0
CMF C24 H16 N2 O



CM 2

CRN 1484-13-5
CMF C14 H11 N

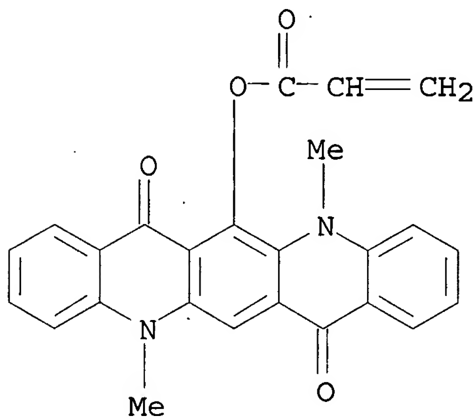


RN 366464-06-4 HCA
CN 2-Propenoic acid, 4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl][1,1'-biphenyl]-4-yl ester, polymer with

5,7,12,14-tetrahydro-5,12-dimethyl-7,14-dioxoquino[2,3-b]acridin-6-yl 2-propenoate (9CI) (CA INDEX NAME)

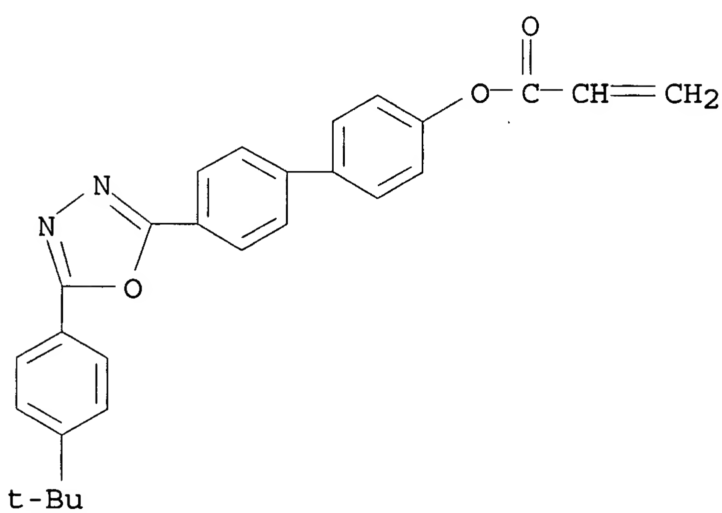
CM 1

CRN 366464-05-3
CMF C25 H18 N2 O4



CM 2

CRN 366464-04-2
CMF C27 H24 N2 O3

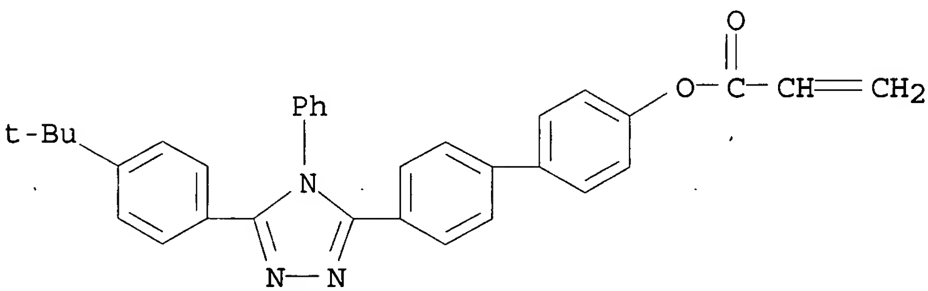


RN 366464-08-6 HCA
CN 2-Propenoic acid, 4'-[5-[4-(1,1-dimethylethyl)phenyl]-4-phenyl-4H-1,2,4-triazol-3-yl][1,1'-biphenyl]-4-yl ester, polymer with

5,7,12,14-tetrahydro-5,12-dimethyl-7,14-dioxoquino[2,3-b]acridin-6-yl 2-propenoate (9CI) (CA INDEX NAME)

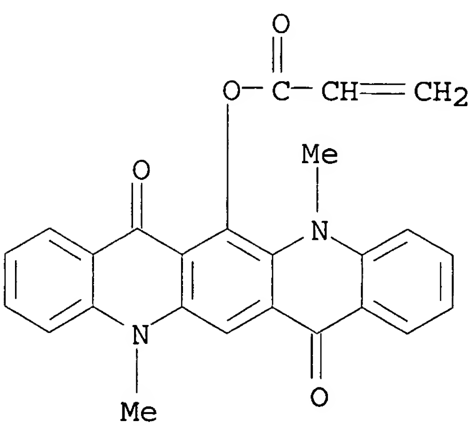
CM 1

CRN 366464-07-5
CMF C33 H29 N3 O2



CM 2

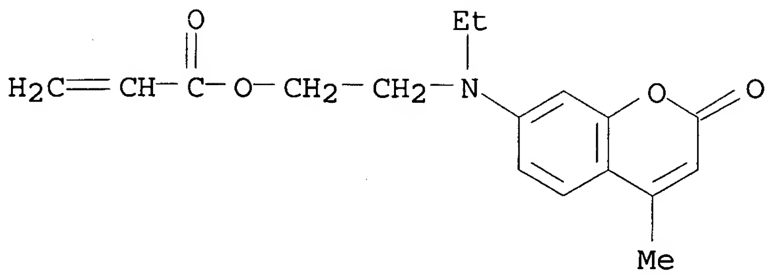
CRN 366464-05-3
CMF C25 H18 N2 O4



RN 366464-19-9 HCA
CN 2-Propenoic acid, 2-[ethyl(4-methyl-2-oxo-2H-1-benzopyran-7-yl)amino]ethyl ester, polymer with 2-(4-ethenyl-1-naphthalenyl)-5-(1-naphthalenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

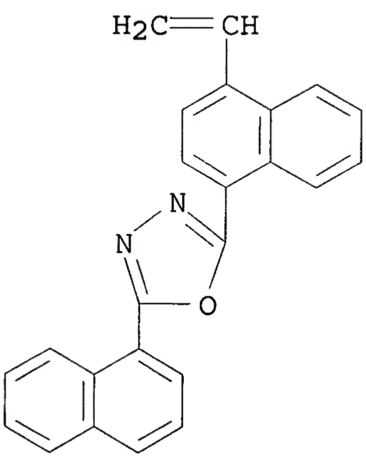
CM 1

CRN 366464-18-8
CMF C17 H19 N O4



CM 2

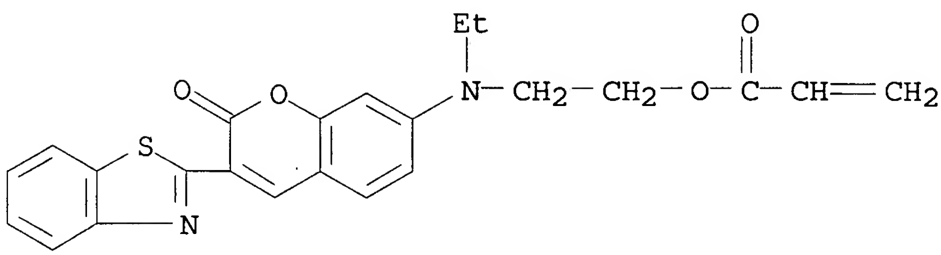
CRN 366464-02-0
CMF C24 H16 N2 O



RN 366479-00-7 HCA
CN Aluminum, [[8-(hydroxy-.kappa.O)-5-quinolinyl-.kappa.N] 2-propenoato]bis(8-quinolinolato-.kappa.N1,.kappa.O8)-, polymer with 2-[[3-(2-benzothiazolyl)-2-oxo-2H-1-benzopyran-7-yl]ethylamino]ethyl 2-propenoate (9CI) (CA INDEX NAME)

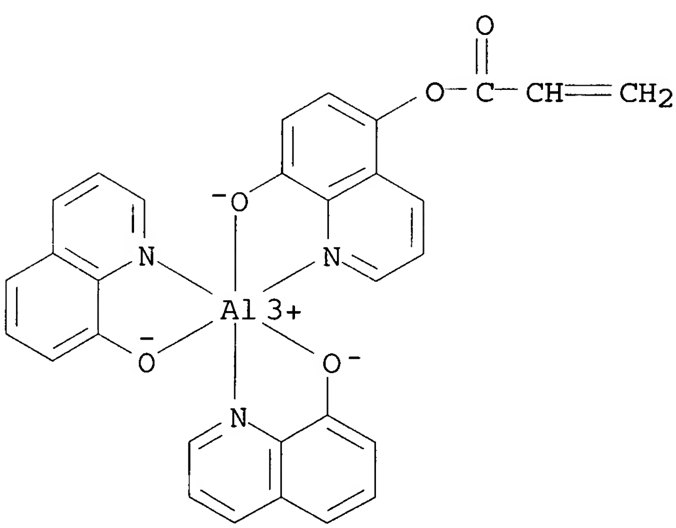
CM 1

CRN 366478-99-1
CMF C23 H20 N2 O4 S



CM 2

CRN 366478-94-6
CMF C30 H20 Al N3 O5
CCI CCS



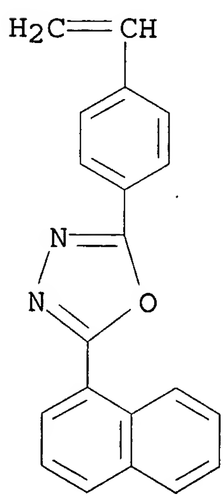
IC ICM H05B033-14
ICS C09K011-06
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST org **electroluminescent** copolymer phosphor electron transport
IT Electric transport properties
Electrodes
Phosphors
Pigments, nonbiological
Semiconductor lasers
(org. **electroluminescent** devices)
IT **Electroluminescent** devices
(org.; org. **electroluminescent** devices)

IT 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 15082-28-7
16998-91-7 50926-11-9, ITO 65181-78-4 **366464-03-1**
366464-06-4 **366464-08-6** 366464-11-1
366464-13-3 366464-14-4 366464-15-5 366464-17-7
366464-19-9 366464-20-2 366464-21-3 366478-95-7
366478-98-0 **366479-00-7** 366479-01-8 366479-02-9
(org. **electroluminescent** devices)

L73 ANSWER 11 OF 22 HCA
135:310632 Organic **electroluminescent** devices and manufacture.
Komatsuzaki, Akihiro; Ishii, Satoshi; Aikawa, Koichiro; Tsuge, Hodaka; Shimada, Yoichi (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001284045 A2 20011012, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-91916 20000329.
AB The devices comprise: (1) a glass substrate; (2) an ITO 1st electrode; (3) a hole transporting layer ; (4) a phosphor layer; (5) an electron injection layer; and (6) a MgAg 2nd electrode.
IT **197089-42-2** **292624-63-6**
(org. **electroluminescent** devices and manuf.)
RN 197089-42-2 HCA
CN 1,3,4-Oxadiazole, 2-(4-ethenylphenyl)-5-(1-naphthalenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

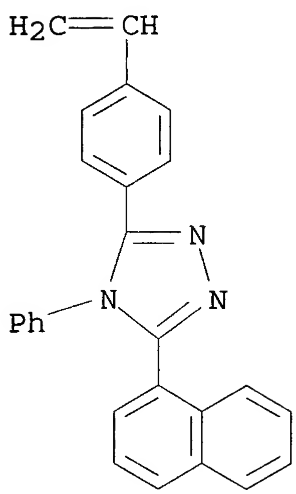
CRN 197089-41-1
CMF C20 H14 N2 O



RN 292624-63-6 HCA
CN 4H-1,2,4-Triazole, 3-(4-ethenylphenyl)-5-(1-naphthalenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 292624-62-5
CMF C26 H19 N3

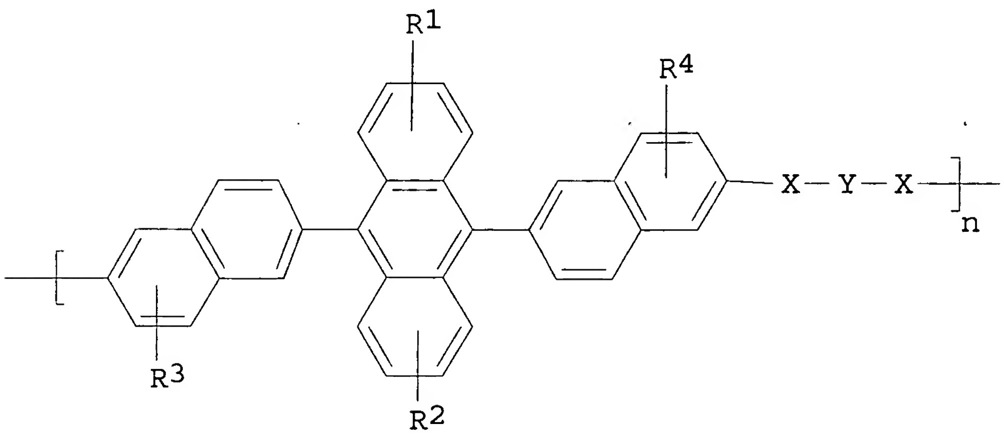


IC ICM H05B033-10
ICS H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST org **electroluminescent** metal quinolinol
IT **Anodes**
Cathodes
Electroluminescent devices
Electron transport
Glass substrates
Hole transport
Phosphors
(org. **electroluminescent** devices and manuf.)
IT 91-64-5, Coumarin 2085-33-8, Tris(8-quinolinolato)aluminum 9003-53-6, Polystyrene 9017-21-4, Polyvinyltoluene 25036-01-5, Polyacenaphthylene 25067-59-8, Poly-N-vinyl carbazole 25232-08-0, Poly-4-vinylbiphenyl 28406-56-6, Poly2-vinylnaphthalene 29659-51-6, Poly-9-vinylanthracene 37271-44-6 50926-11-9, ITO 51325-91-8 51325-95-2 59269-51-1, Polyvinylphenol 86885-30-5, Poly-9-vinylphenanthrene 136711-27-8 173394-18-8 193968-77-3 **197089-42-2 292624-63-6** 292624-95-4 292624-96-5 292624-99-8 366001-69-6
(org. **electroluminescent** devices and manuf.)

L73 ANSWER 12 OF 22 HCA COPYRIGHT 2005 ACS on STN
134:346283 **Electroluminescent** devices having naphthylanthracene-based polymers. Shi, Jianmin; Zheng, Shiying

(Eastman Kodak Company, USA). Eur. Pat. Appl. EP 1094101 A2 20010425, 56 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-203504 20001009. PRIORITY: US 1999-421980 19991020.

GI



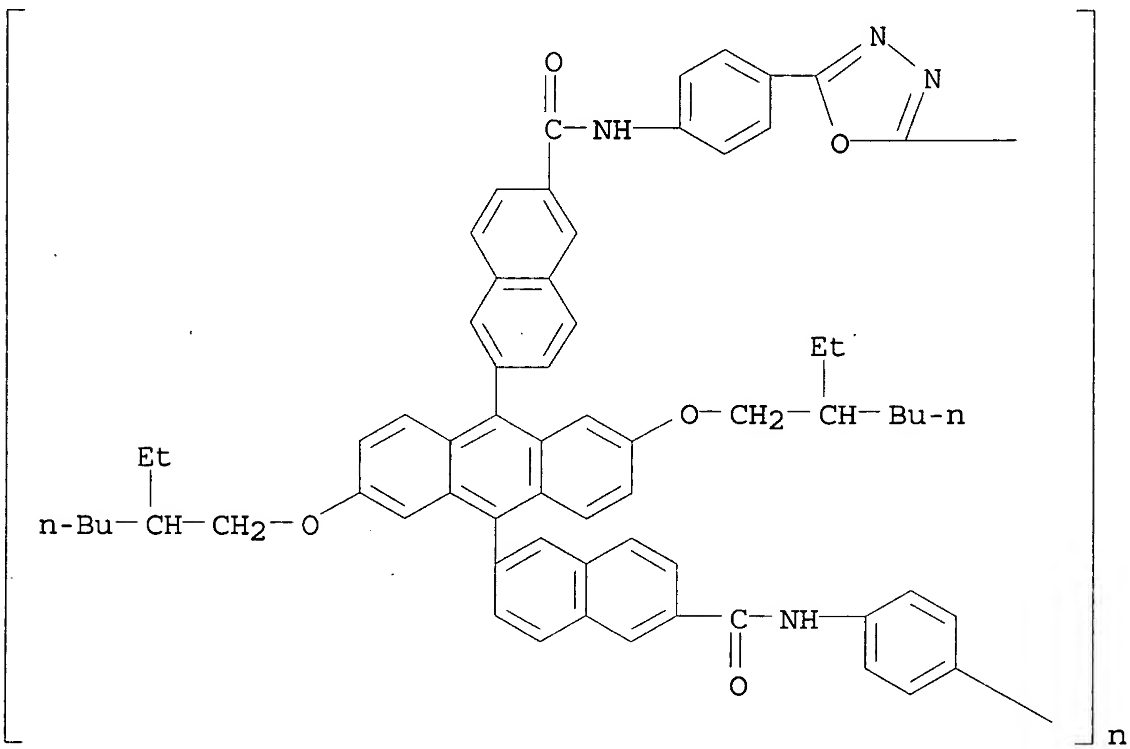
I

AB **Electroluminescent** devices comprising an **anode**, a **cathode**, and polymer luminescent materials disposed between the **anode** and **cathode** are described in which the polymeric luminescent materials include 9,10-di-(2-naphthyl)anthracene-based polymers described by the general formula I (R1-4 = independently selected H, alkyl, C1-24 alkoxy, C6-28 (un)substituted aryl, C4-40 (un)substituted heteroaryl, F, Cl, Br, cyano, or nitro groups; X = a linking group; and Y includes .gtoreq.1 comonomer units that are (un)substituted alkyl, alkenyl, aryl, heteroaryl, or conjugated groups).

IT **337370-31-7 337370-33-9 337370-35-1**
337370-37-3 337370-39-5 337370-41-9
337370-43-1 337370-45-3 337370-47-5
337372-81-3 337372-83-5 337372-86-8
337372-88-0 337372-91-5 337372-94-8
337372-96-0 337372-99-3 337373-02-1
337373-05-4 337373-07-6 337373-10-1
337373-13-4 337373-16-7 337373-19-0
337373-21-4
(**electroluminescent** devices using naphthylanthracene-based polymers)

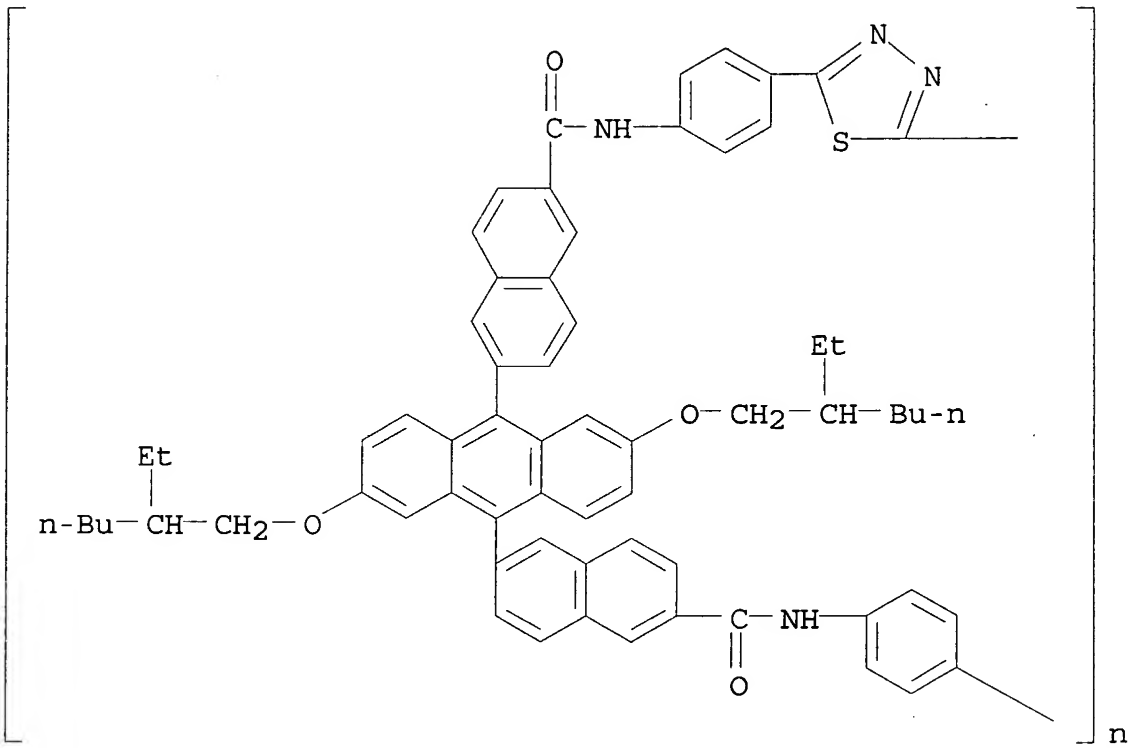
RN 337370-31-7 HCA

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneiminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino-1,4-phenylene] (9CI) (CA INDEX NAME)



RN 337370-33-9 HCA

CN Poly[1,3,4-thiadiazole-2,5-diyl-1,4-phenyleneiminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino-1,4-phenylene] (9CI) (CA INDEX NAME)

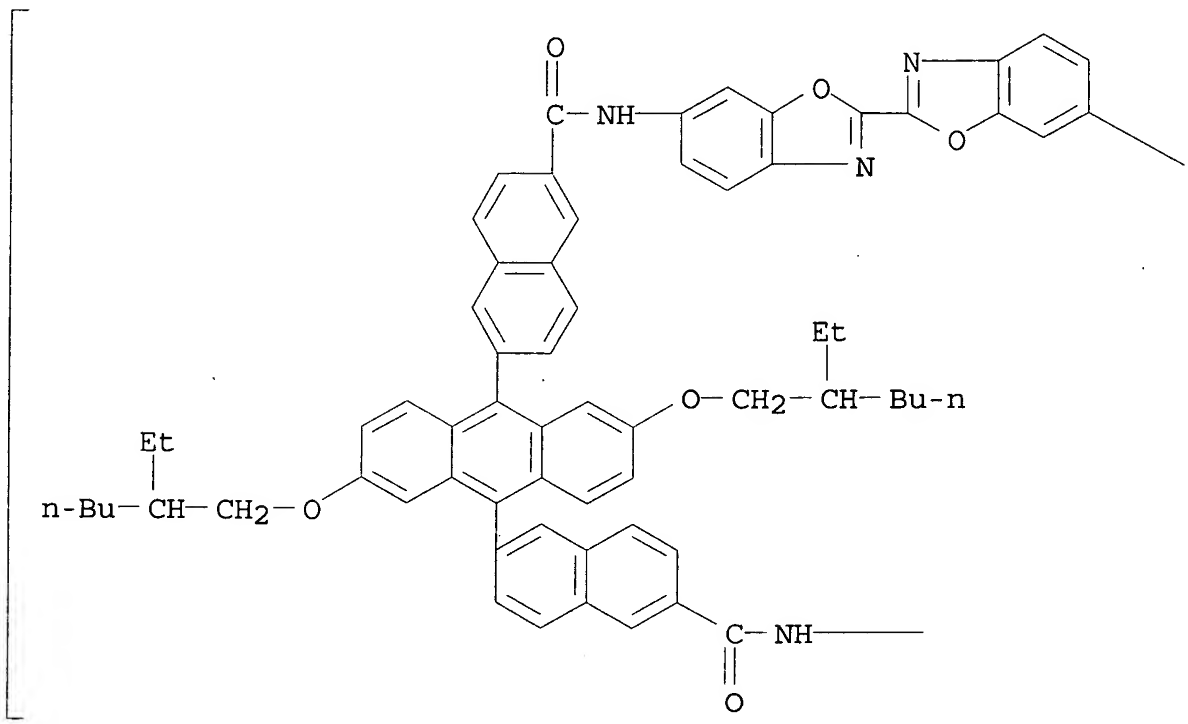


RN 337370-35-1 HCA
CN Poly[(4-hexyl-4H-1,2,4-triazole-3,5-diyl)-1,4-phenyleneiminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino-1,4-phenylene] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *
RN 337370-37-3 HCA
CN Poly[[2,2'-bibenzoxazole]-6,6'-diyliminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino] (9CI) (CA INDEX NAME)

PAGE 1-A

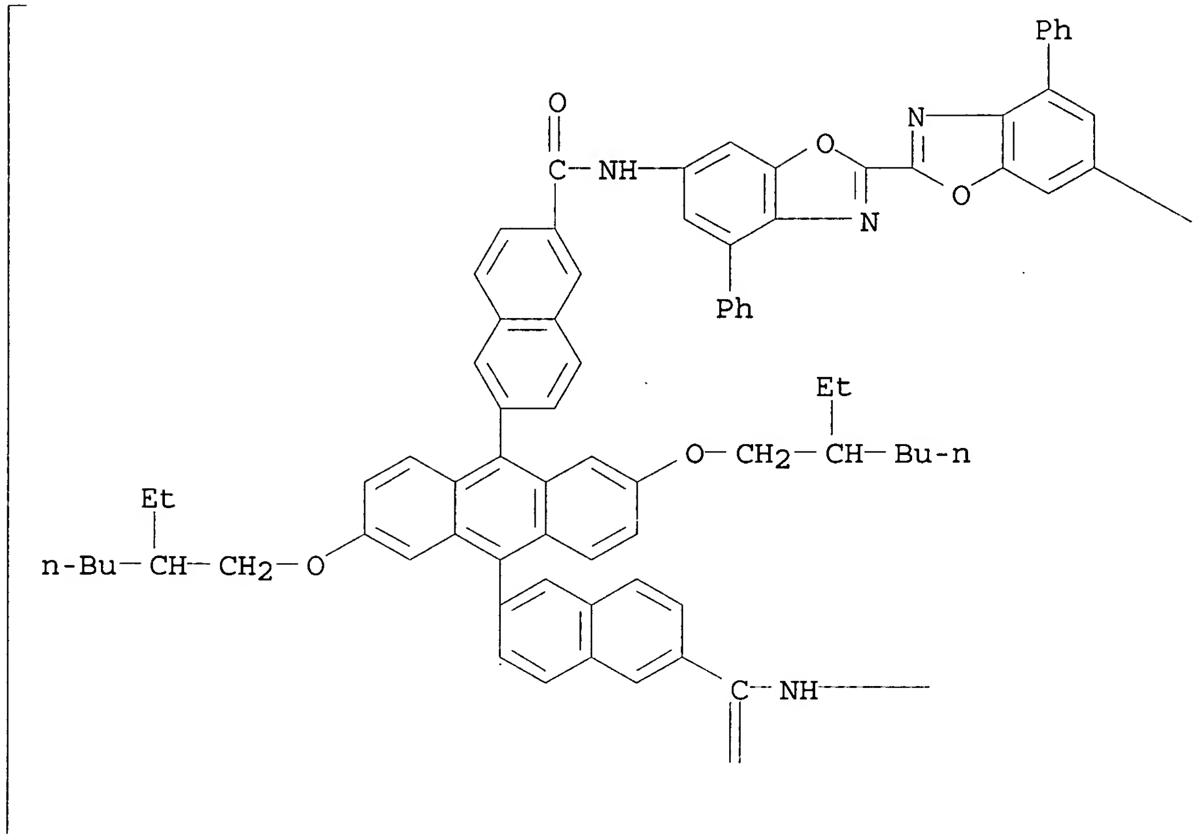


PAGE 1-B

RN 337370-39-5 HCA

CN Poly[(4,4'-diphenyl[2,2'-bibenzoxazole]-6,6'-diyl)iminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

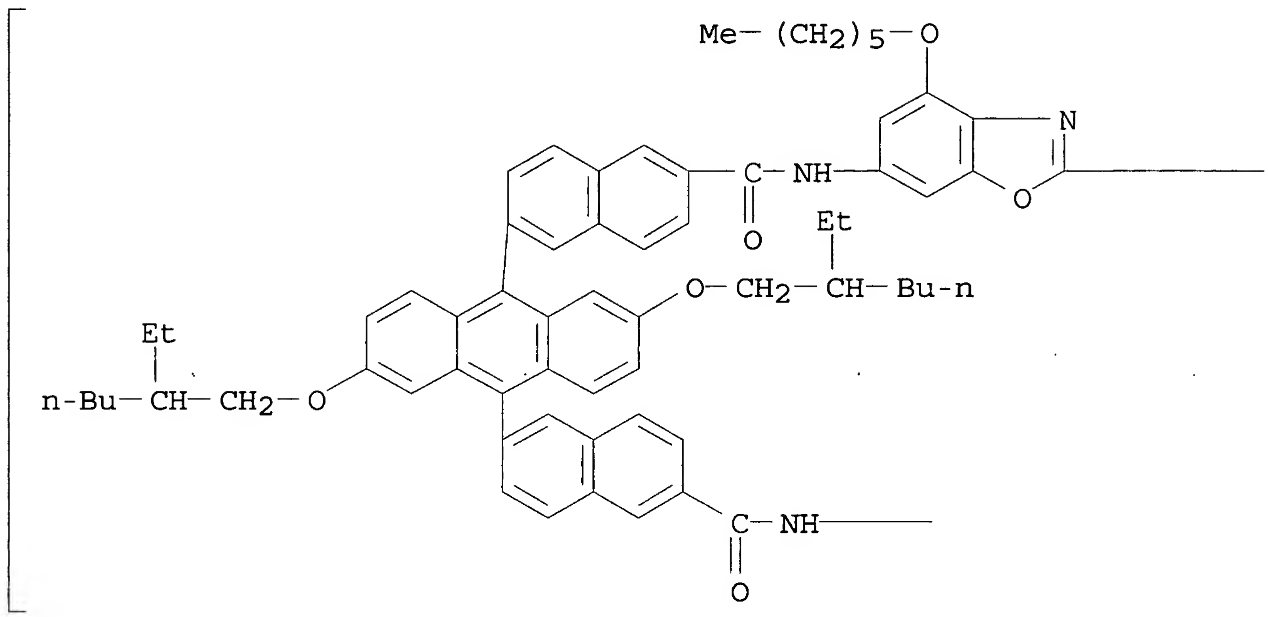
PAGE 2-A

PAGE 2-B

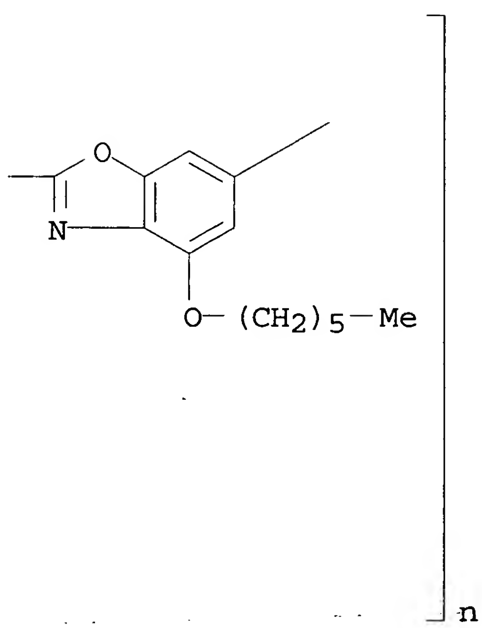
RN 337370-41-9 HCA

CN Poly[[4,4'-bis(hexyloxy)[2,2'-bibenzoxazole]-6,6'-diyl]iminocarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonylimino] (9CI) (CA INDEX NAME)

PAGE 1-A



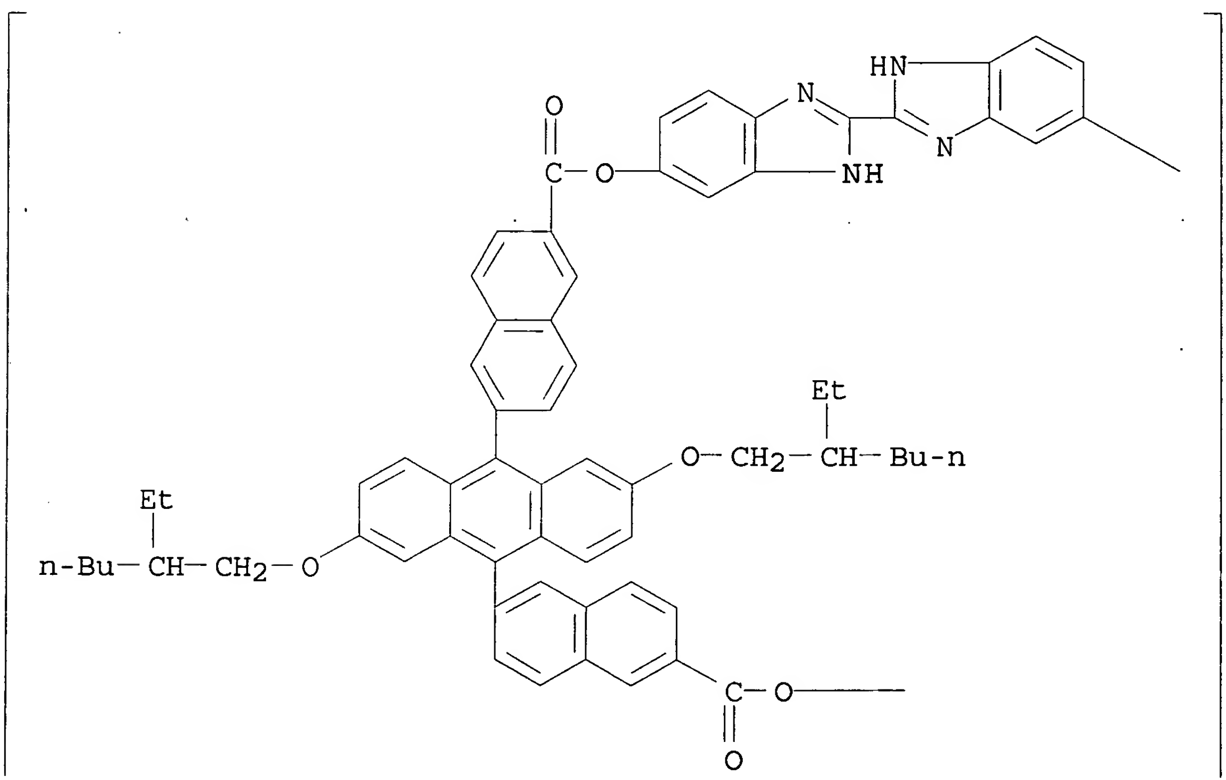
PAGE 1-B



RN 337370-43-1 HCA

CN Poly[[2,2'-bi-1H-benzimidazole]-5,5'-diyloxycarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonyloxy] (9CI) (CA INDEX NAME)

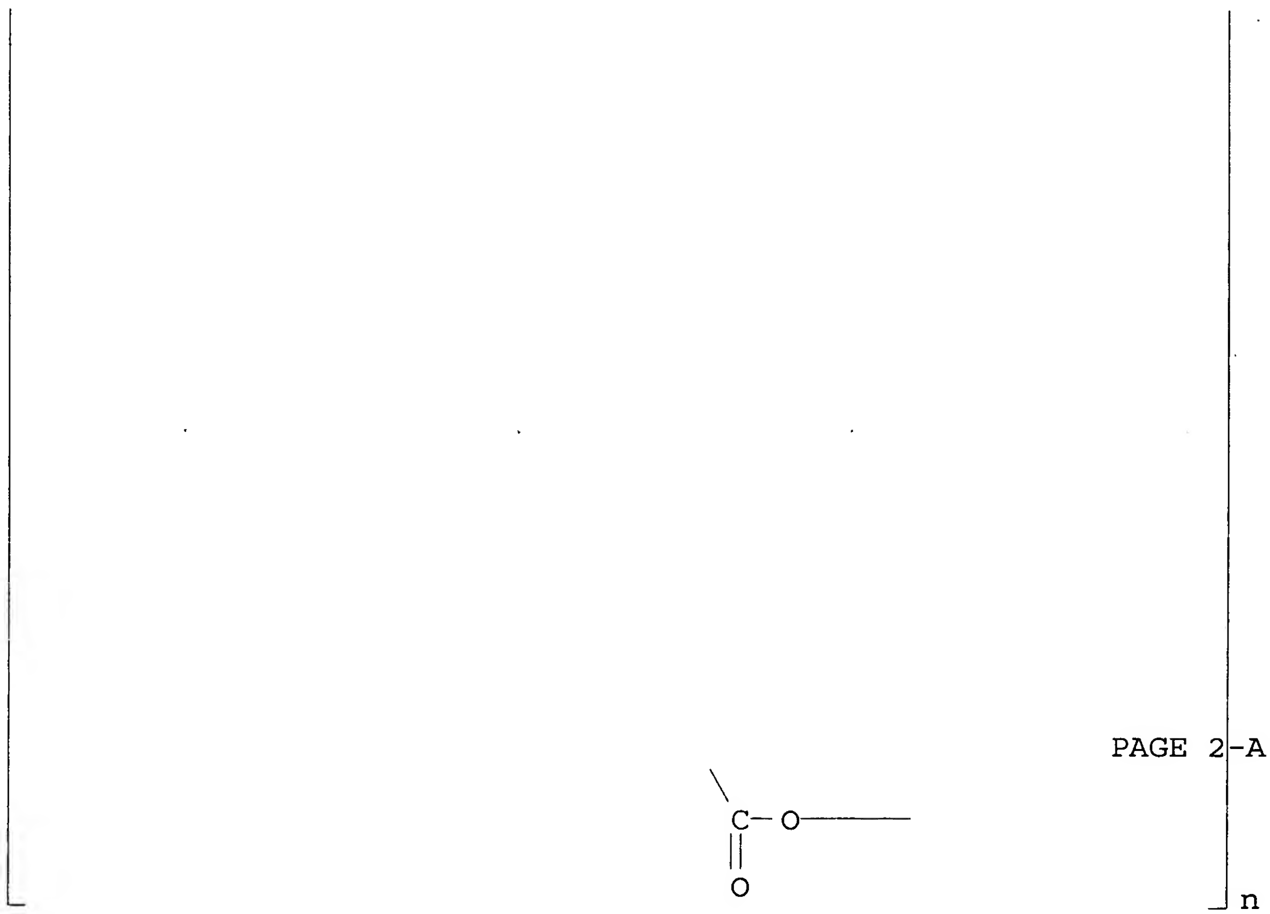
PAGE 1-A



PAGE 2-A
n

RN 337370-45-3 HCA
CN Poly[(7,7'-diphenyl[2,2'-bi-1H-benzimidazole]-5,5'-diyl)oxycarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonyloxy] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



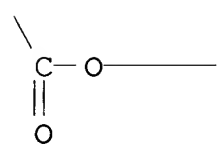
PAGE 2-A

RN 337370-47-5 HCA
CN Poly[[7,7'-bis(hexyloxy)[2,2'-bi-1H-benzimidazole]-5,5''-diyl]oxycarbonyl-2,6-naphthalenediyl[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]-2,6-naphthalenediylcarbonyloxy] (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 2-A

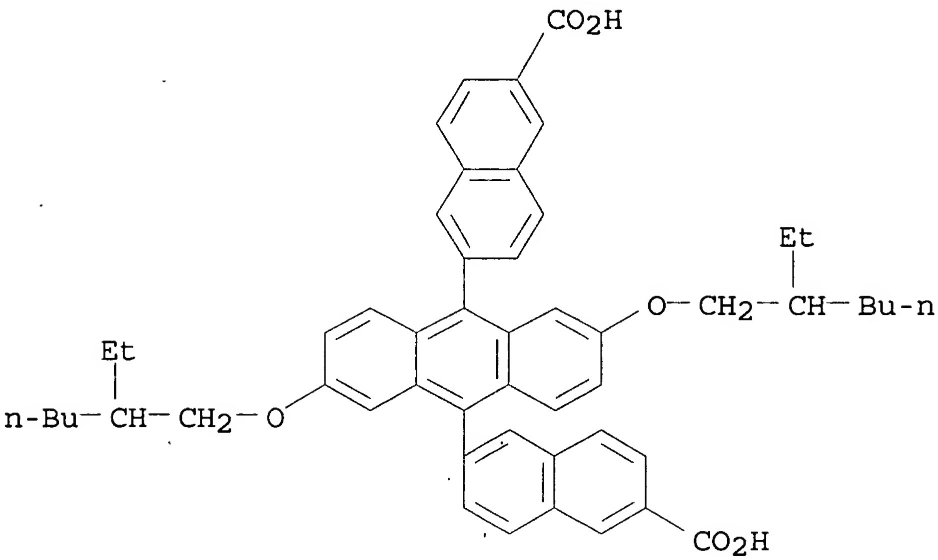


PAGE 2-B

RN 337372-81-3 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 4,4'-(1,3,4-oxadiazole-2,5-diyl)bis[benzenamine] (9CI) (CA INDEX NAME)

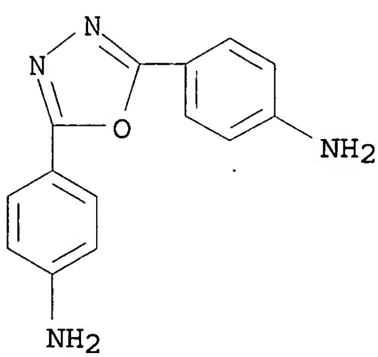
CM 1

CRN 337371-31-0
CMF C52 H54 O6



CM 2

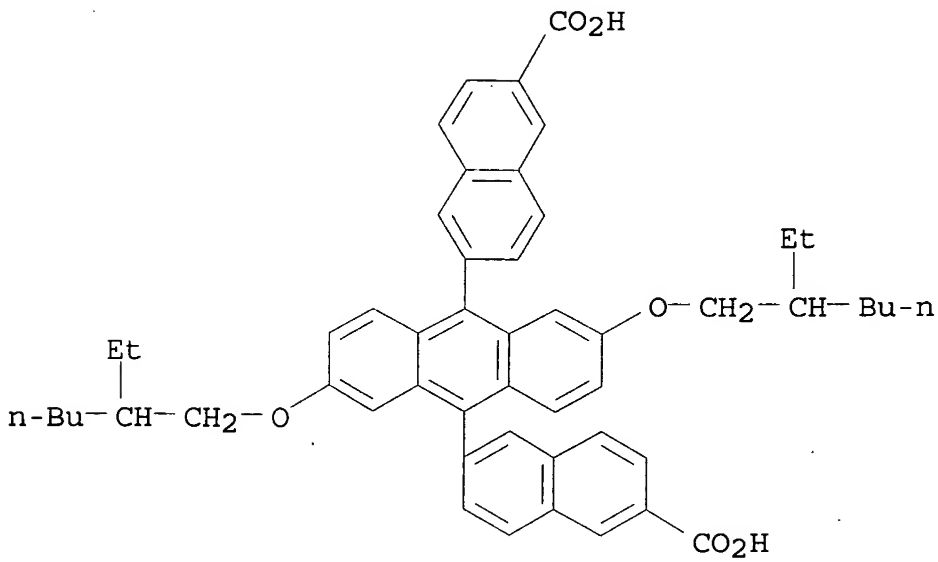
CRN 2425-95-8
CMF C14 H12 N4 O



RN 337372-83-5 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 4,4'-(1,3,4-thiadiazole-2,5-diyl)bis[benzenamine] (9CI) (CA INDEX NAME)

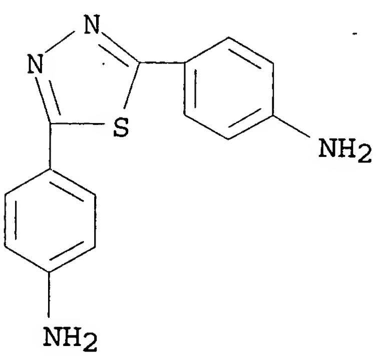
CM 1

CRN 337371-31-0
CMF C52 H54 O6



CM 2

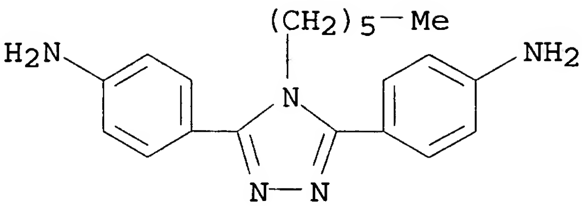
CRN 2642-62-8
CMF C14 H12 N4 S



RN 337372-86-8 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 4,4'-(4-hexyl-4H-1,2,4-triazole-3,5-diyl)bis[benzenamine] (9CI) (CA INDEX NAME)

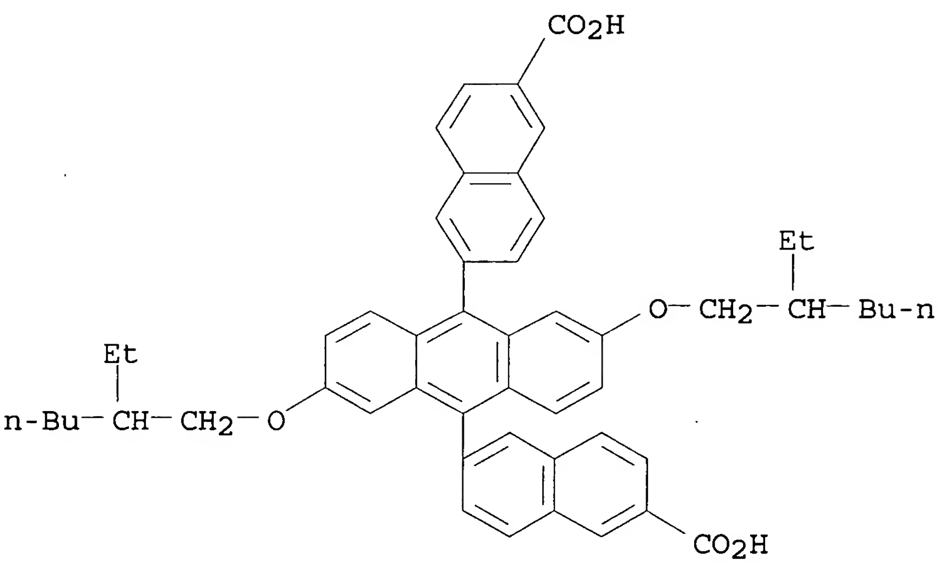
CM 1

CRN 337372-85-7
CMF C20 H25 N5



CM 2

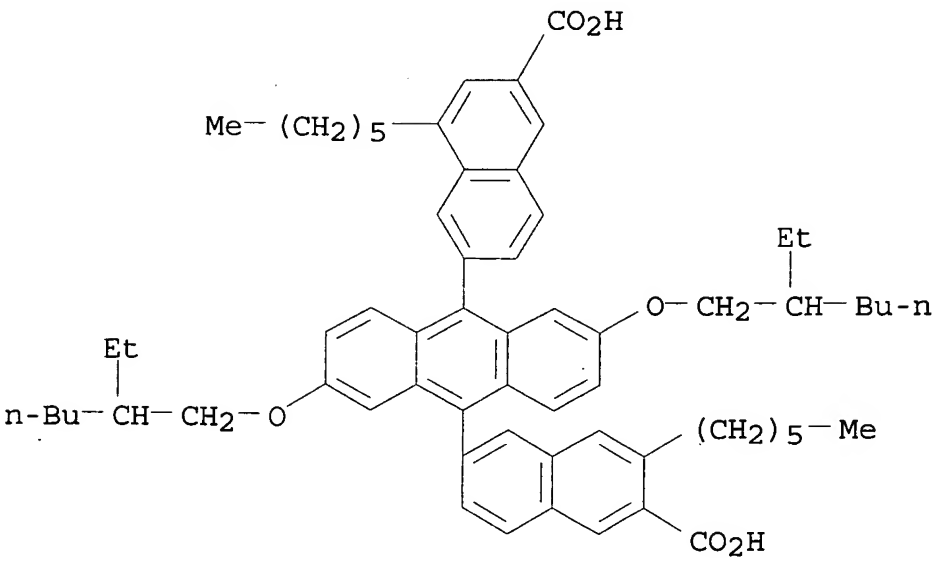
CRN 337371-31-0
CMF C52 H54 O6



RN 337372-88-0 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-(6-carboxy-8-hexyl-2-naphthalenyl)-2,6-bis[(2-ethylhexyl)oxy]-9-anthracenyl]-3-hexyl-, polymer with 4',4'''-1,3,4-oxadiazole-2,5-diylbis[[1,1'-biphenyl]-4-amine] (9CI) (CA INDEX NAME)

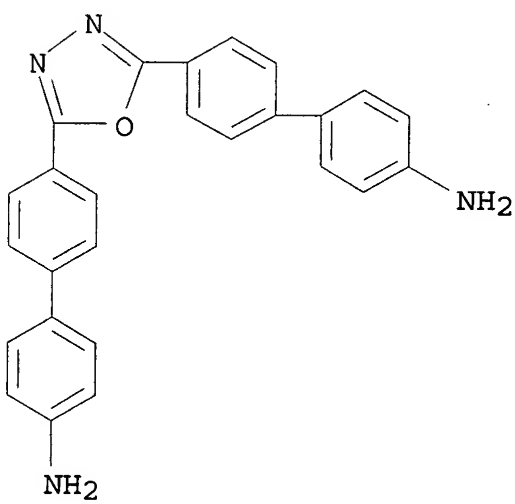
CM 1

CRN 337372-42-6
CMF C64 H78 O6



CM 2

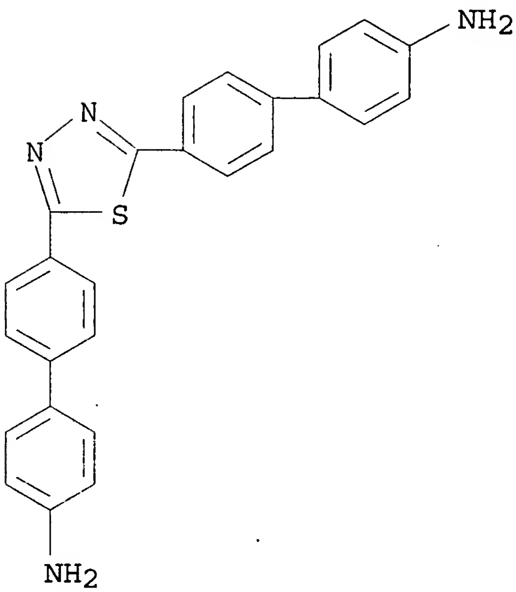
CRN 130292-95-4
CMF C26 H20 N4 O



RN 337372-91-5 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-(6-carboxy-8-hexyl-2-naphthalenyl)-2,6-bis[(2-ethylhexyl)oxy]-9-anthracenyl]-3-hexyl-, polymer with 4,4'-(1,3,4-thiadiazole-2,5-diyl)bis[[1,1'-biphenyl]-4-amine] (9CI) (CA INDEX NAME)

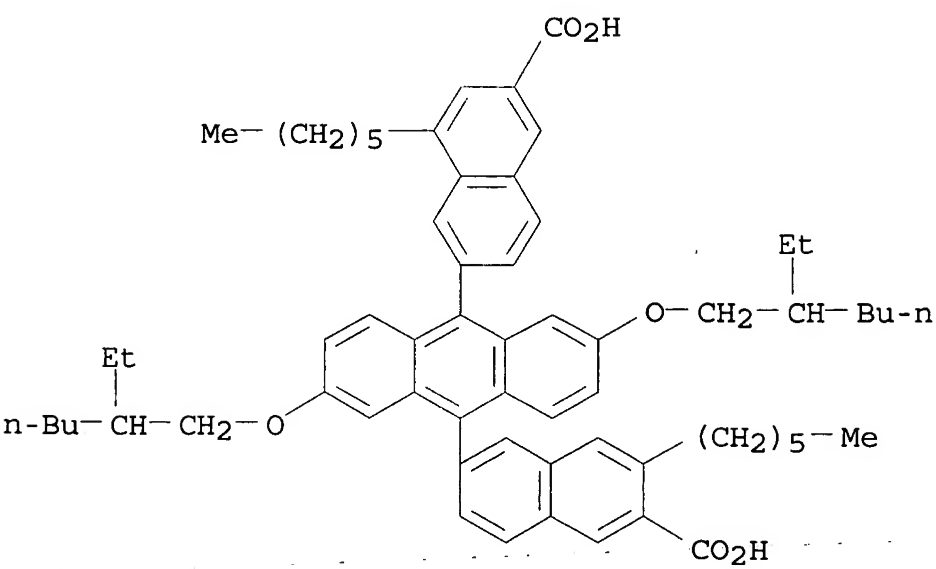
CM 1

CRN 337372-90-4
CMF C26 H20 N4 S



CM 2

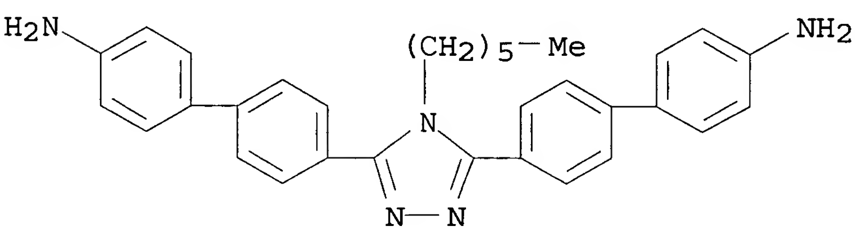
CRN 337372-42-6
CMF C64 H78 O6



RN 337372-94-8 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-(6-carboxy-8-hexyl-2-naphthalenyl)-2,6-bis[(2-ethylhexyl)oxy]-9-anthracenyl]-3-hexyl-, polymer with 4',4'''-(4-hexyl-4H-1,2,4-triazole-3,5-diyl)bis[[1,1'-biphenyl]-4-amine] (9CI) (CA INDEX NAME)

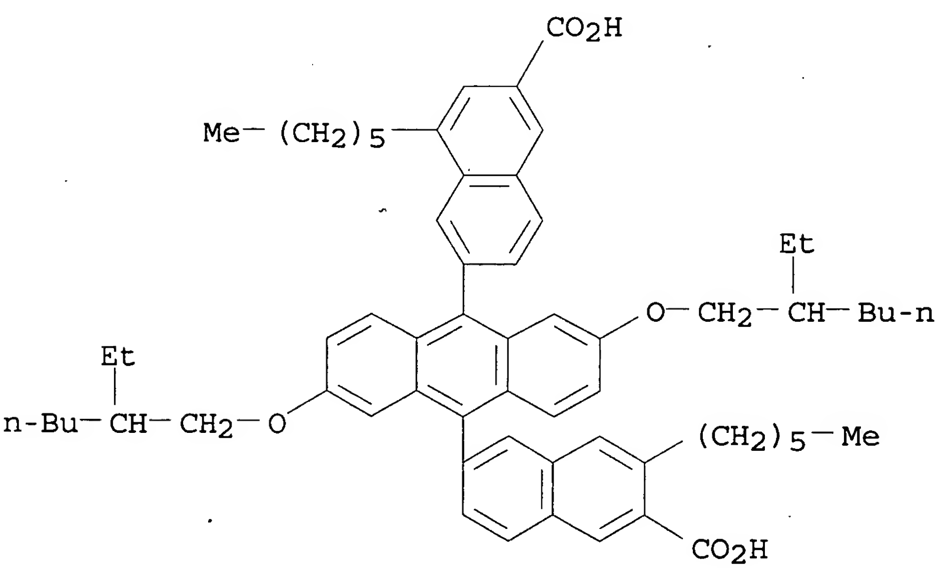
CM 1

CRN 337372-93-7
CMF C32 H33 N5



CM 2

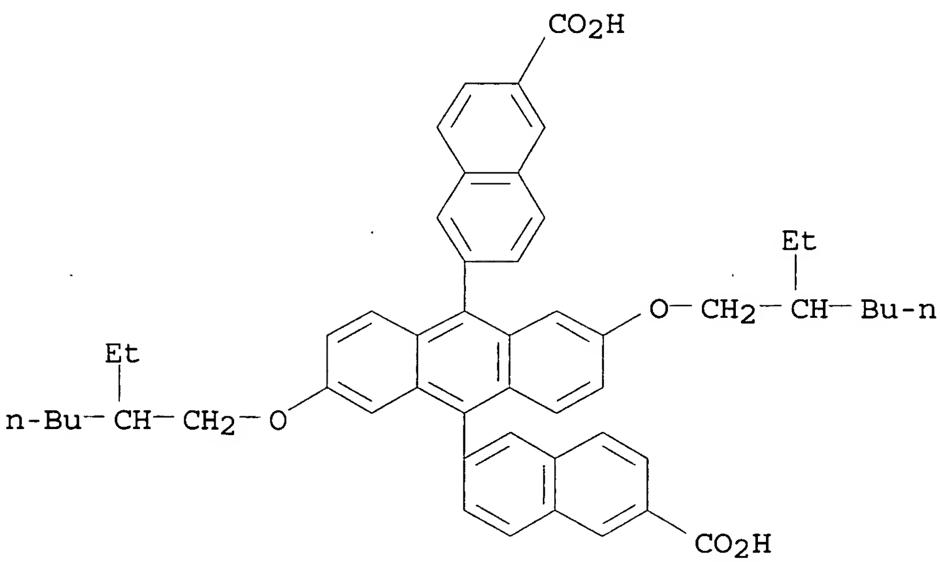
CRN 337372-42-6
CMF C64 H78 O6



RN 337372-96-0 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with [2,2'-bibenzoxazole]-6,6'-diamine (9CI) (CA INDEX NAME)

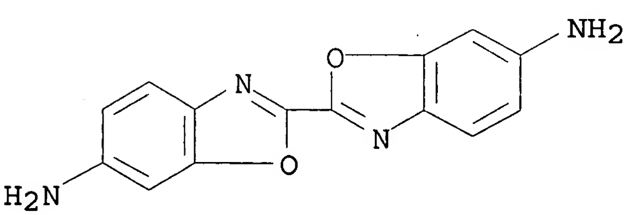
CM 1

CRN 337371-31-0
CMF C52 H54 O6



CM 2

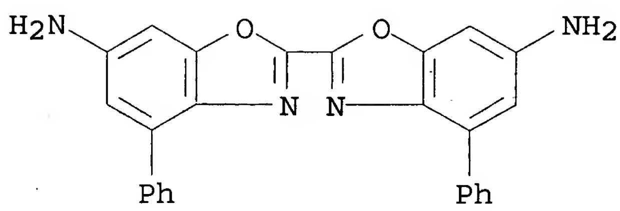
CRN 94533-94-5
CMF C14 H10 N4 O2



RN 337372-99-3 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 4,4'-diphenyl[2,2'-bibenzoxazole]-6,6'-diamine (9CI) (CA INDEX NAME)

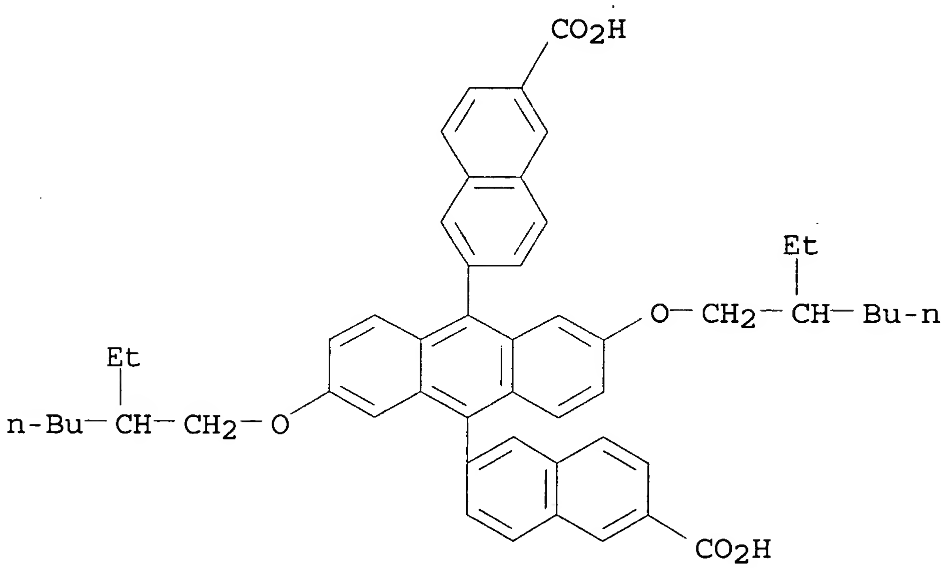
CM 1

CRN 337372-98-2
CMF C26 H18 N4 O2



CM 2

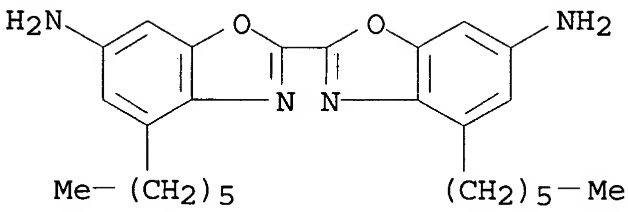
CRN 337371-31-0
CMF C52 H54 O6



RN 337373-02-1 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-(6-carboxy-8-hexyl-2-naphthalenyl)-2,6-bis(1,1-dimethylethyl)-9-anthracenyl]-3-hexyl-, polymer with 4,4'-dihexyl[2,2'-bibenzoxazole]-6,6'-diamine (9CI) (CA INDEX NAME)

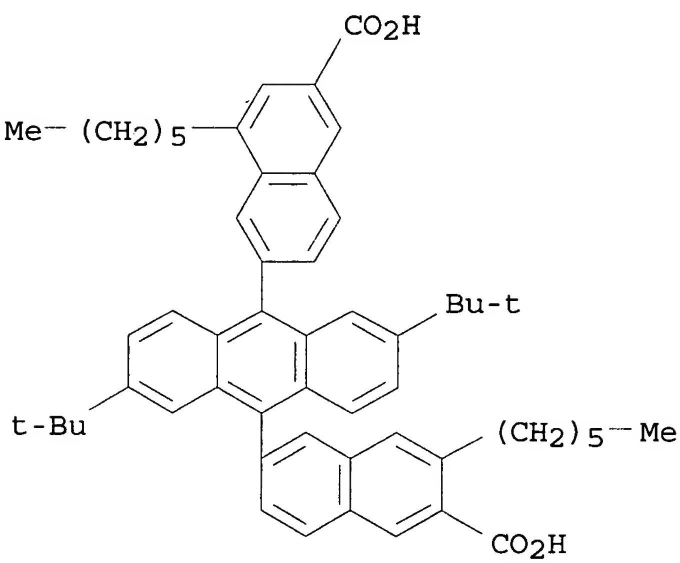
CM 1

CRN 337373-01-0
CMF C26 H34 N4 O2



CM 2

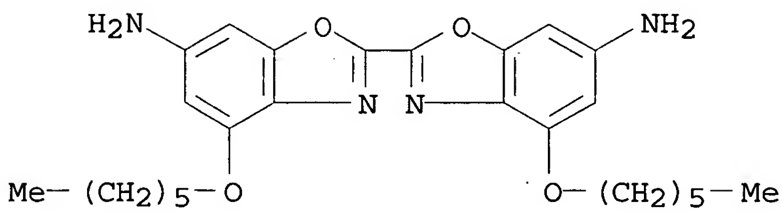
CRN 337372-45-9
CMF C56 H62 O4



RN 337373-05-4 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 4,4'-bis(hexyloxy)[2,2'-bibenzoxazole]-6,6'-diamine (9CI) (CA INDEX NAME)

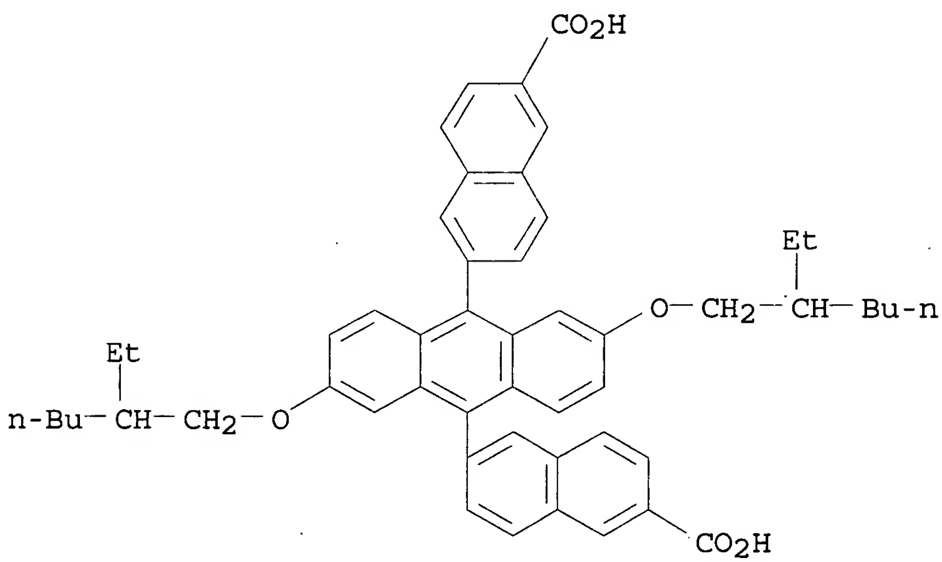
CM 1

CRN 337373-04-3
CMF C26 H34 N4 O4



CM 2

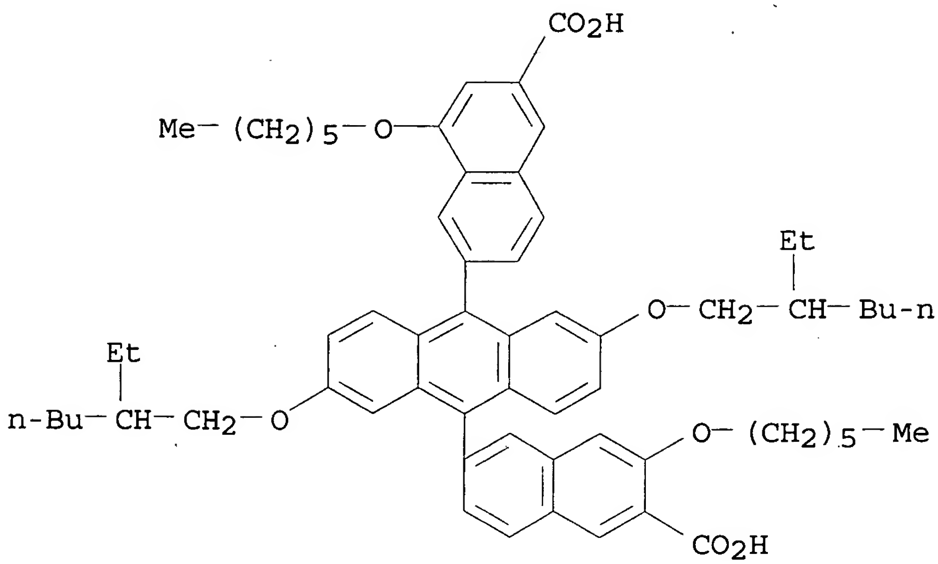
CRN 337371-31-0
CMF C52 H54 O6



RN 337373-07-6 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-[6-carboxy-8-(hexyloxy)-2-naphthalenyl]-2,6-bis[(2-ethylhexyl)oxy]-9-anthracenyl]-3-(hexyloxy)-, polymer with [2,2'-bibenzoxazole]-6,6'-diamine (9CI) (CA INDEX NAME)

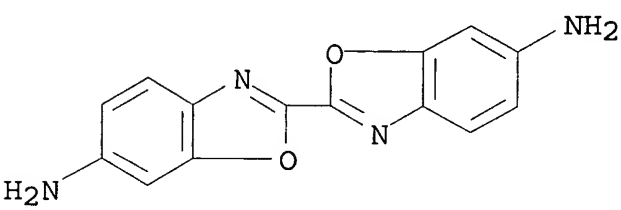
CM 1

CRN 337372-75-5
CMF C64 H78 O8



CM 2

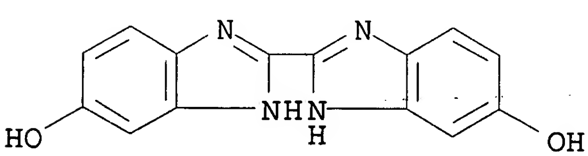
CRN 94533-94-5
CMF C14 H10 N4 O2



RN 337373-10-1 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with [2,2'-bi-1H-benzimidazole]-5,5'-diol (9CI) (CA INDEX NAME)

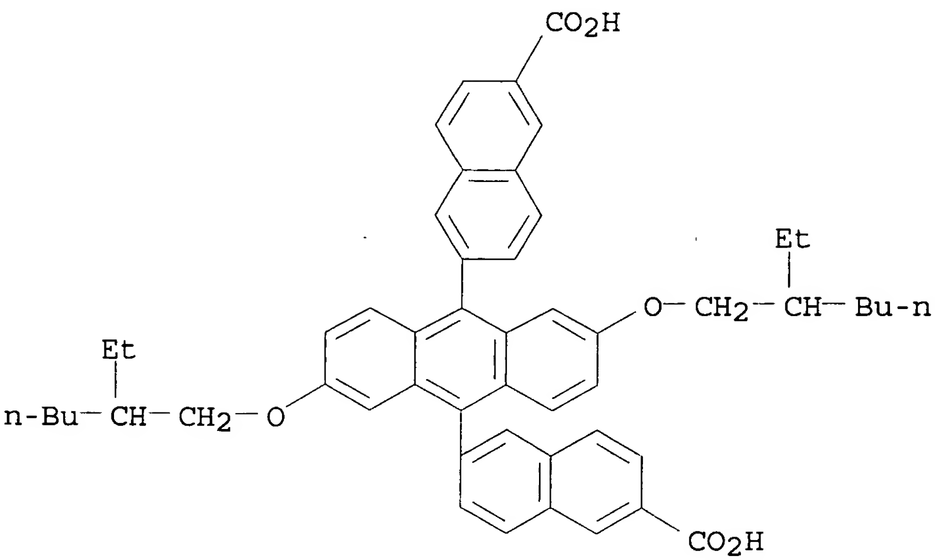
CM 1

CRN 337373-09-8
CMF C14 H10 N4 O2



CM 2

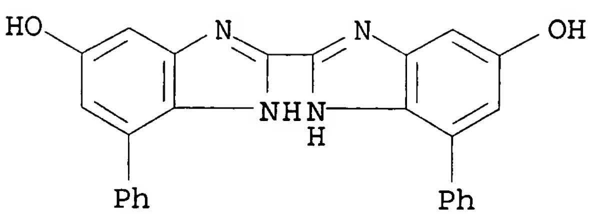
CRN 337371-31-0
CMF C52 H54 O6



RN 337373-13-4 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 7,7'-diphenyl[2,2'-bi-1H-benzimidazole]-5,5'-diol (9CI) (CA INDEX NAME)

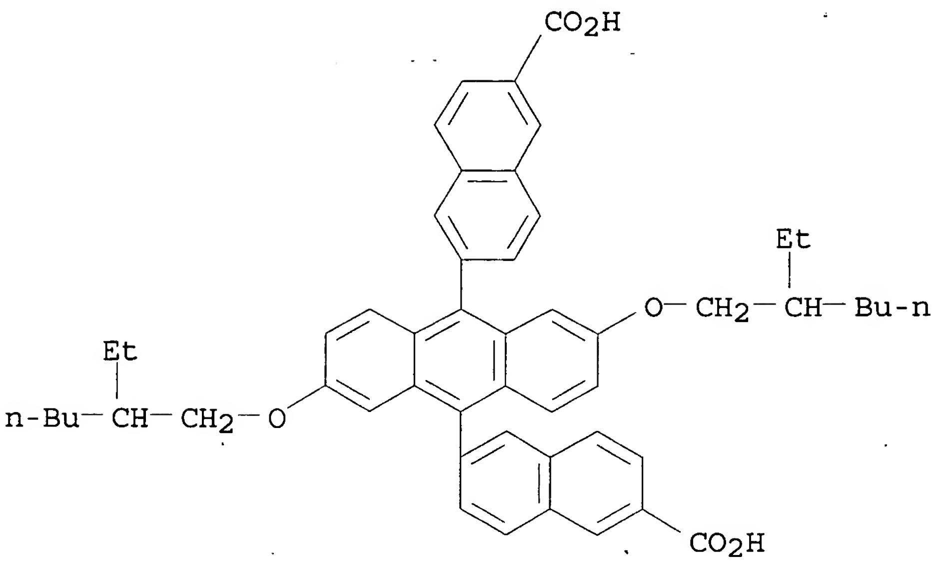
CM 1

CRN 337373-12-3
CMF C26 H18 N4 O2



CM 2

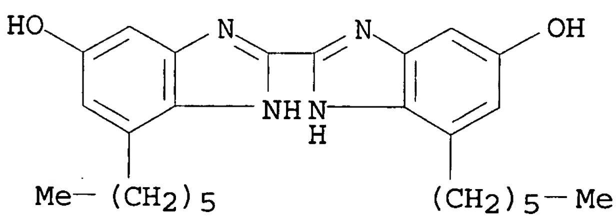
CRN 337371-31-0
CMF C52 H54 O6



RN 337373-16-7 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-(6-carboxy-8-hexyl-2-naphthalenyl)-2,6-bis(1,1-dimethylethyl)-9-anthracenyl]-3-hexyl-, polymer with 7,7'-dihexyl[2,2'-bi-1H-benzimidazole]-5,5'-diol (9CI) (CA INDEX NAME)

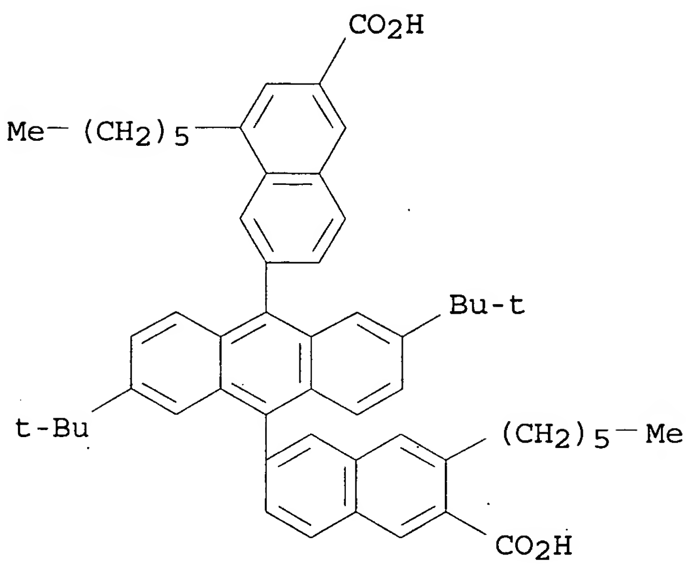
CM 1

CRN 337373-15-6
CMF C26 H34 N4 O2



CM 2

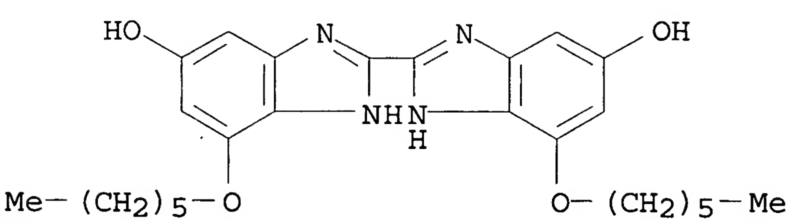
CRN 337372-45-9
CMF C56 H62 O4



RN 337373-19-0 HCA
CN 2-Naphthalenecarboxylic acid, 6,6'-[2,6-bis[(2-ethylhexyl)oxy]-9,10-anthracenediyl]bis-, polymer with 7,7'-bis(hexyloxy)[2,2'-bi-1H-benzimidazole]-5,5'-diol (9CI) (CA INDEX NAME)

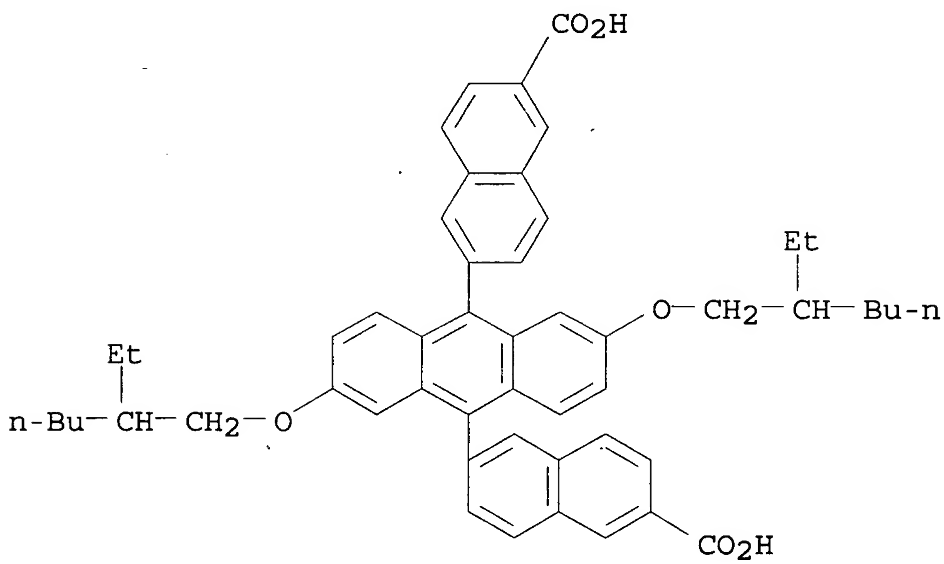
CM 1

CRN 337373-18-9
CMF C26 H34 N4 O4



CM 2

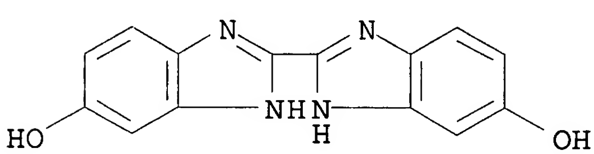
CRN 337371-31-0
CMF C52 H54 O6



RN 337373-21-4 HCA
CN 2-Naphthalenecarboxylic acid, 6-[10-[6-carboxy-8-(hexyloxy)-2-naphthalenyl]-2,6-bis[(2-ethylhexyl)oxy]-9-anthracenyl]-3-(hexyloxy)-, polymer with [2,2'-bi-1H-benzimidazole]-5,5'-diol (9CI) (CA INDEX NAME)

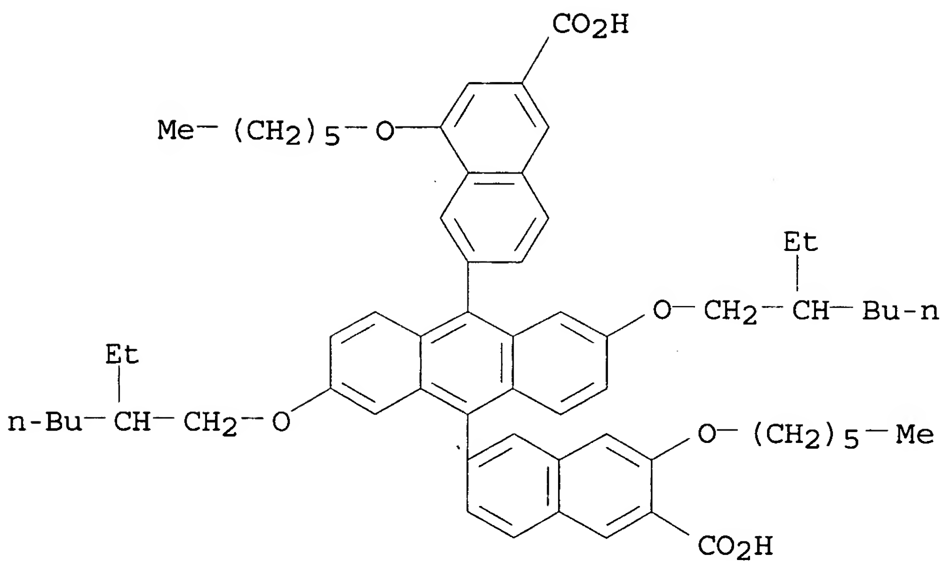
CM 1

CRN 337373-09-8
CMF C14 H10 N4 O2



CM 2

CRN 337372-75-5
CMF C64 H78 O8



IC ICM C09K011-06
ICS H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 76
ST naphthyl anthracene polymer **electroluminescent** device
IT **Electroluminescent** devices
(**electroluminescent** devices using naphthylanthracene-based polymers)
IT Phosphors
(**electroluminescent; electroluminescent** devices using naphthylanthracene-based polymers)
IT 337368-77-1 337368-80-6 337368-87-3 337368-91-9 337368-95-3
337369-10-5 337369-13-8 337369-16-1 337369-19-4 337369-23-0
337369-27-4 337369-36-5 337369-46-7 337369-49-0 337369-55-8
337369-58-1 337369-61-6 337369-64-9 337369-67-2 337369-69-4
337369-71-8 337369-73-0 337369-75-2 337369-77-4 337369-78-5
337369-79-6 337369-80-9 337369-82-1 337369-86-5 337369-88-7
337369-90-1 337369-92-3 337369-94-5 337369-95-6 337369-97-8
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337372-79-9 **337372-81-3 337372-83-5**
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337459-66-2 337459-67-3 337459-68-4 337459-70-8 337459-71-9
337459-79-7 337459-80-0 337459-81-1 337459-82-2 337459-83-3
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337460-32-9 337460-50-1 337460-51-2 337460-56-7 337460-57-8
337460-58-9 337460-62-5 337460-63-6 337460-69-2 337460-71-6
337460-72-7 337460-75-0 337460-76-1 337460-77-2 337460-78-3
337460-79-4 337460-97-6 337461-03-7 337461-04-8
(**electroluminescent** devices using naphthylanthracene-based polymers)

IT 337461-06-0 337461-07-1 337461-08-2 337461-09-3 337461-10-6
337461-11-7 337461-13-9 337461-14-0 337461-15-1 337461-16-2
337461-18-4 337461-19-5 337461-20-8 337461-21-9 337461-22-0
337461-24-2 337461-25-3 337461-26-4 337463-04-4 337463-67-9
337464-26-3 337464-27-4 337464-28-5 337464-29-6 337464-30-9
337464-31-0 337464-32-1 337464-44-5 337464-45-6 337464-46-7
337464-47-8 337464-48-9 337464-60-5 337464-61-6 337465-00-6
337465-01-7 337465-03-9 337465-04-0 337465-12-0 337465-14-2
337465-16-4 337465-17-5 337465-19-7 337465-22-2 337465-23-3
337465-44-8 337465-45-9 337465-98-2
(**electroluminescent** devices using naphthylanthracene-

based polymers)

IT 337368-83-9P 337368-99-7P 337369-03-6P 337369-07-0P
337369-31-0P 337369-41-2P 337369-52-5P 337369-84-3P
337370-80-6P 337371-21-8P 337371-74-1P
(**electroluminescent** devices using naphthylanthracene-based polymers)

IT 18798-85-1P 18800-99-2P 62375-58-0P 99964-58-6P 106679-32-7P
235099-48-6P 332083-42-8P 332083-43-9P 332083-44-0P
332083-45-1P 332083-46-2P 337369-40-1P 337370-61-3P
337370-62-4P 337370-63-5P
(**electroluminescent** devices using naphthylanthracene-based polymers)

IT 84-60-6, 2,6-Dihydroxyanthraquinone 98-06-6, tert-Butyl benzene
106-89-8, Epichlorohydrin, reactions 121-43-7, Trimethyl borate
126-30-7, 2,2-Dimethylpropane-1,3-diol 143-15-7, 1-Bromododecane
523-27-3, 9,10-Dibromoanthracene 628-13-7, Pyridine hydrochloride
5111-65-9, 2-Bromo-6-methoxy naphthalene 7439-95-4, Magnesium,
reactions 15231-91-1, 6-Bromo-2-hydroxynaphthalene 18908-66-2,
2-Ethylhexyl bromide 25620-62-6, Dibromoethane 32703-79-0
(**electroluminescent** devices using naphthylanthracene-based polymers)

IT 38046-82-1P
(**electroluminescent** devices using naphthylanthracene-based polymers)

L73 ANSWER 13 OF 22 HCA COPYRIGHT 2005 ACS on STN

134:223260 Luminescence Properties of Structurally Modified PPVs: PPV Derivatives Bearing 2-(4-tert-Butylphenyl)-5-phenyl-1,3,4-oxadiazole Pendants. Lee, Dong Won; Kwon, Ki-Young; Jin, Jung-Il; Park, Yongsup; Kim, Yong-Rok; Hwang, In-Wook (Division of Chemistry and Molecular Engineering and the Center for Electro- and Photo-Responsive Molecules, Korea University, Seoul, 136-701, S. Korea). Chemistry of Materials, 13(2), 565-574 (English) 2001. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB Two new poly(p-phenylenevinylene) (PPV) derivs. bearing 2-phenyl-5-(4-tert-butylphenyl)-1,3,4-oxadiazole pendants were prepd., and their photo- and **electroluminescence** properties were studied. The first polymer (P-1) is poly[2-{4-[5-(4-tert-butylphenyl)-1,3,4-oxadiazolyl]phenyl}-1,4-phenylenevinylene], which is a PPV deriv. having diphenyl-substituted 1,3,4-oxadiazole pendant that is known to be an excellent electron-transporting structure. The second polymer (P-2) is poly[2-{4-[5-(4-tert-butylphenyl)-1,3,4-oxadiazolyl]phenyl}-5-(2-ethylhexyloxy)-1,4-phenylenevinylene]. The only structural difference between P-1 and P-2 is the presence of addnl. 2-ethylhexyloxy pendant groups in P-2. Both polymers were prepd. by direct polymn. of the .alpha.,.alpha.'-dibromo-p-xylene monomers

having the pendant group(s) in the presence of excess potassium tert-butoxide. Both polymers reveal much improved **electroluminescence** (**EL**) properties when compared with PPV. They **emit** luminescence **light** over the wavelength range from about 500 to 600 nm. The external quantum efficiencies of P-1 and P-2 were, resp., 16 and 56 times the value for PPV when LED devices were fabricated using an indium-tin oxide (ITO) coated glass **anode** and the aluminum **cathode**. In particular, the **EL** device ITO/poly(3,4-ethylenedioxy-2,4-thienylene)/P-2/Al:Li geometry revealed a max. luminance of 1090 cd/m2 at the elec. field of 2.36 MV/cm with the external quantum efficiency of 0.045%. The max. brightness of the ITO/P-2/Ca/Al was 7570 cd/m2 at the elec. field of 2.80 MV/cm.

IT **214621-80-4P 329763-83-9P**
(prepn., photoluminescence, and **electroluminescence** of polyphenylenevinylene derivs. bearing 2-(4-tert-butylphenyl)-5-phenyl-1,3,4-oxadiazole pendants for **electroluminescence** devices)

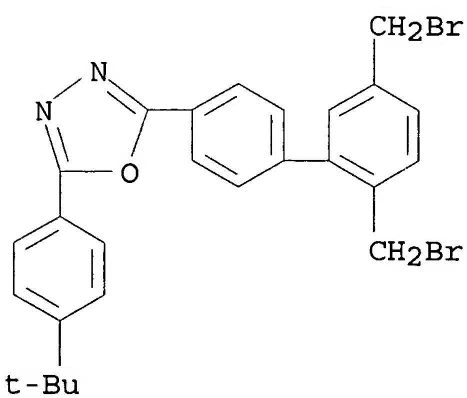
RN 214621-80-4 HCA

CN 1,3,4-Oxadiazole, 2-[2',5'-bis(bromomethyl)[1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 214621-79-1

CMF C26 H24 Br2 N2 O

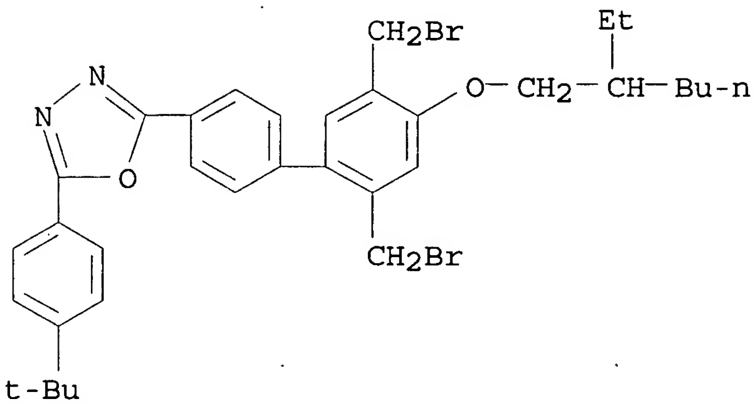


RN 329763-83-9 HCA

CN 1,3,4-Oxadiazole, 2-[2',5'-bis(bromomethyl)-4'-[(2-ethylhexyl)oxy][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 329763-82-8
CMF C34 H40 Br2 N2 O2



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35, 73
ST oxadiazole pendant polyphenylenevinylene deriv prepn photoluminescence **electroluminescence** device
IT **Electroluminescent** devices
Luminescence
Luminescence, **electroluminescence**
(prepn., photoluminescence, and **electroluminescence** of polyphenylenevinylene derivs. bearing 2-(4-tert-butylphenyl)-5-phenyl-1,3,4-oxadiazole pendants for **electroluminescence** devices)
IT Poly(arylenealkenylenes)
(prepn., photoluminescence, and **electroluminescence** of polyphenylenevinylene derivs. bearing 2-(4-tert-butylphenyl)-5-phenyl-1,3,4-oxadiazole pendants for **electroluminescence** devices)
IT 50926-11-9, ITO
(photoluminescence and **electroluminescence** of polyphenylenevinylene derivs. bearing 2-(4-tert-butylphenyl)-5-phenyl-1,3,4-oxadiazole pendants for **electroluminescence** devices using TIO)
IT **214621-80-4P 329763-83-9P** 329790-84-3P
329790-94-5P
(prepn., photoluminescence, and **electroluminescence** of polyphenylenevinylene derivs. bearing 2-(4-tert-butylphenyl)-5-phenyl-1,3,4-oxadiazole pendants for **electroluminescence** devices)

L73 ANSWER 14 OF 22 HCA
133:244858 Organic **electroluminescent** devices and manufacture.
Ishii, Satoshi; Tsuge, Hodaka; Shimada, Yoichi (Honda Motor Co.,

Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000252076 A2 20000914, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-54980 19990303.

AB The devices comprise: (1) a **cathode**; (2) a hole transport layer; (3) an electron transporting polymer layer; (4) a phosphor layer comprising (2) or (3); and (5) an **anode**, where (1) and (5) are transparent; and (3) contains 1-5 side chains(s) comprising alkyl or alkoxy group(s).

IT **197089-42-2 292056-29-2 292624-42-1**
292624-43-2 292624-44-3 292624-45-4
292624-46-5 292624-47-6 292624-48-7
292624-49-8 292624-50-1 292624-51-2
292624-52-3 292624-53-4 292624-55-6
292624-57-8 292624-58-9 292624-60-3
292624-63-6 292624-66-9 292624-69-2
292624-72-7
(org. **electroluminescent** devices and manuf.)

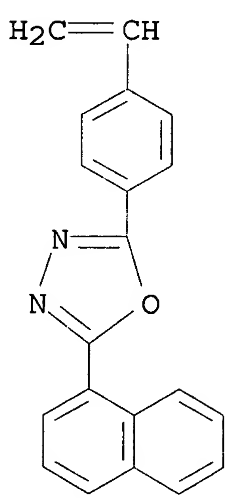
RN 197089-42-2 HCA

CN 1,3,4-Oxadiazole, 2-(4-ethenylphenyl)-5-(1-naphthalenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

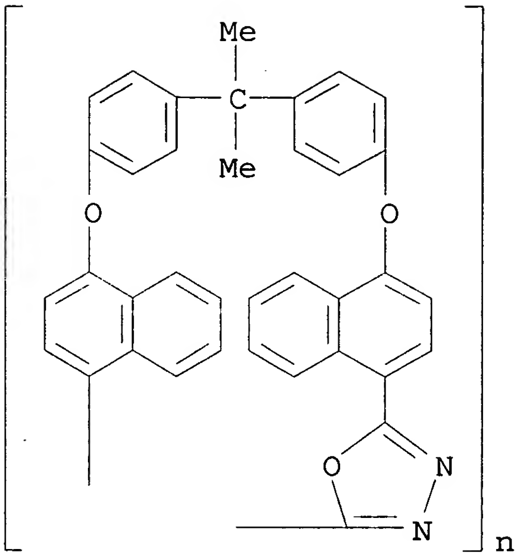
CRN 197089-41-1

CMF C20 H14 N2 O

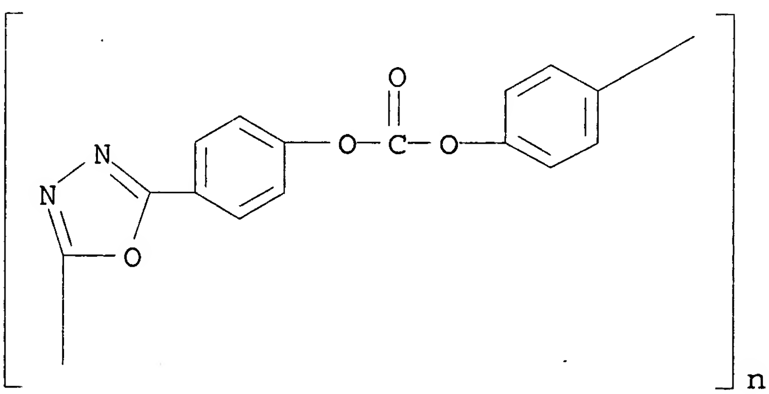


RN 292056-29-2 HCA

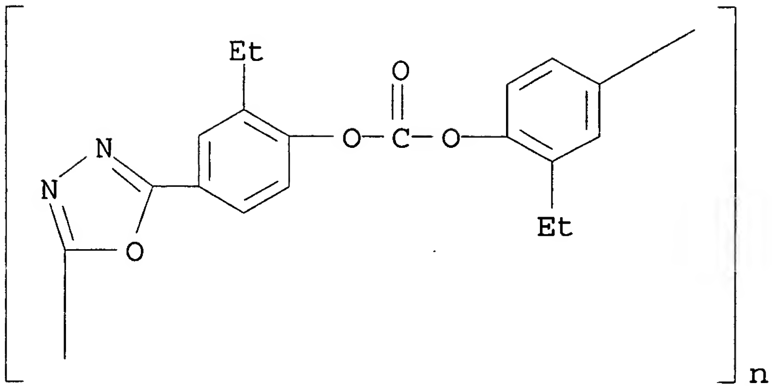
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-naphthalenediyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



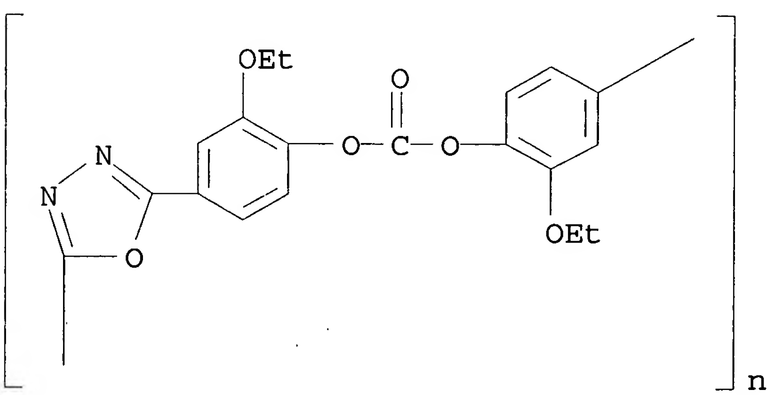
RN 292624-42-1 HCA
CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxycarbonyloxy-1,4-phenylene) (9CI) (CA INDEX NAME)



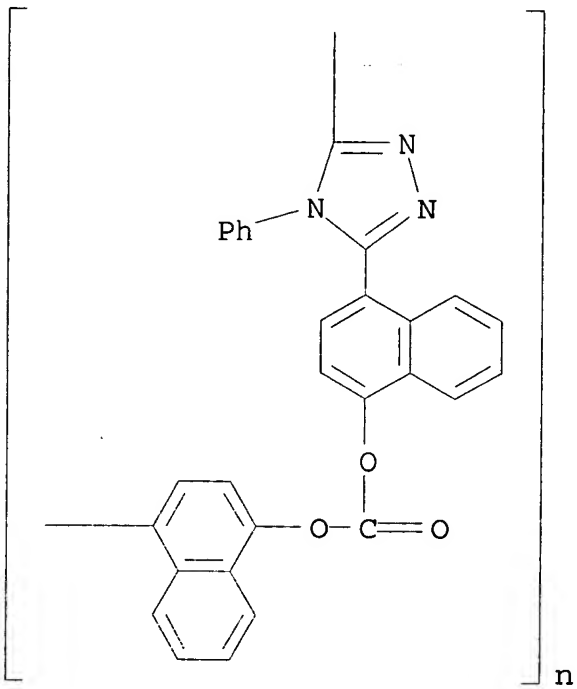
RN 292624-43-2 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(3-ethyl-1,4-phenylene)oxycarbonyloxy(2-ethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)



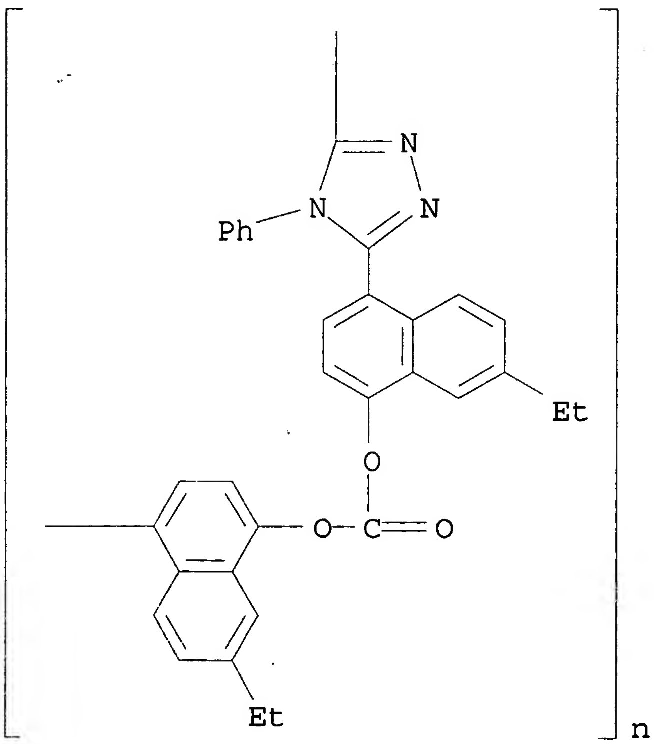
RN 292624-44-3 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(3-ethoxy-1,4-phenylene)oxycarbonyloxy(2-ethoxy-1,4-phenylene)] (9CI) (CA INDEX NAME)



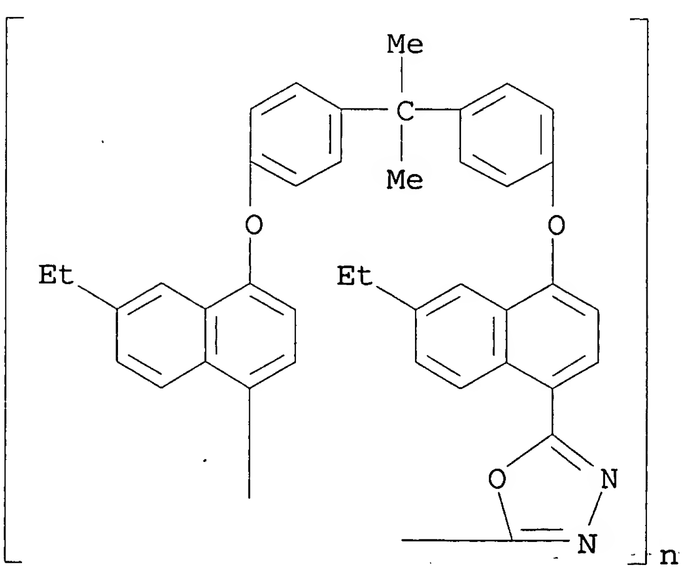
RN 292624-45-4 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)-1,4-naphthalenediyloxycarbonyloxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



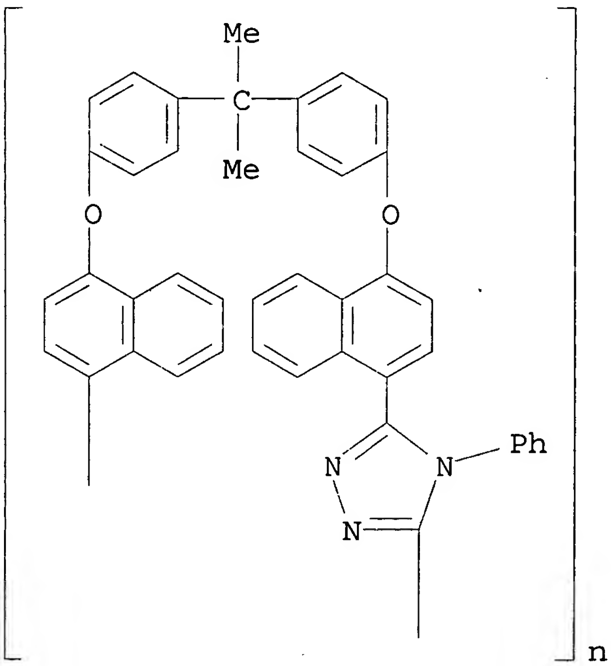
RN 292624-46-5 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)(6-ethyl-1,4-naphthalenediyl)oxycarbonyloxy(7-ethyl-1,4-naphthalenediyl)] (9CI) (CA INDEX NAME)



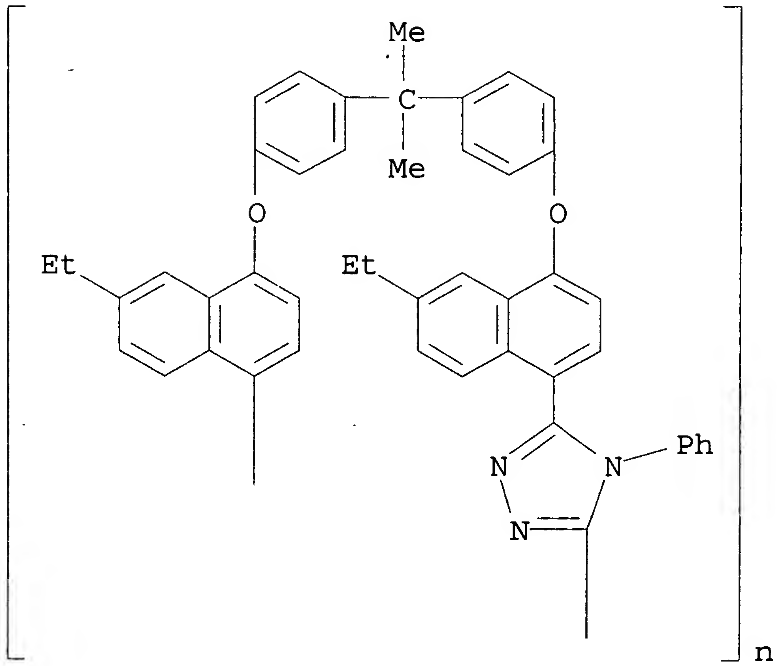
RN 292624-47-6 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(6-ethyl-1,4-naphthalenediyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy(7-ethyl-1,4-naphthalenediyl)] (9CI) (CA INDEX NAME)



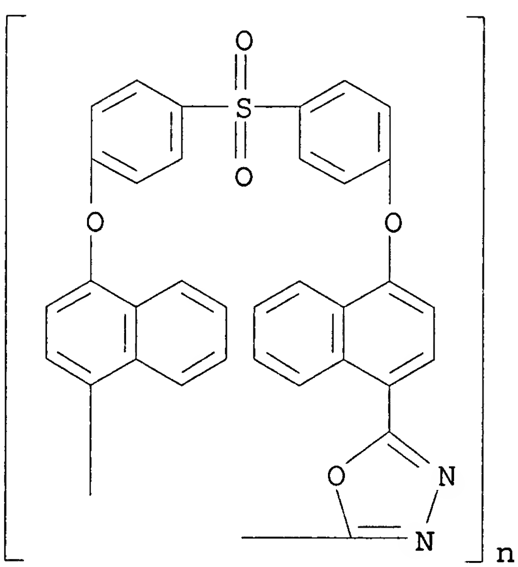
RN 292624-48-7 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)-1,4-naphthalenediyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-naphthalenediyl] (9CI) (CA INDEX NAME)



RN 292624-49-8 HCA
CN Poly[(4-phenyl-4H-1,2,4-triazole-3,5-diyl)(6-ethyl-1,4-naphthalenediyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy(7-ethyl-1,4-naphthalenediyl)] (9CI) (CA INDEX NAME)

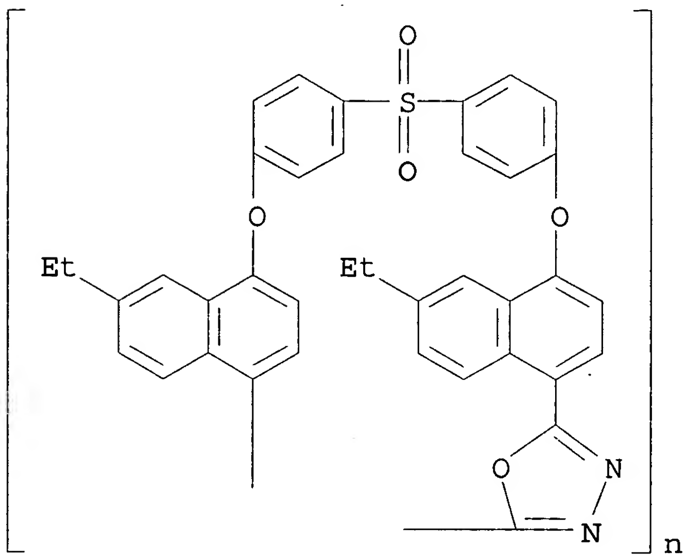


RN 292624-50-1 HCA
CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-naphthalenediyloxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-naphthalenediyl) (9CI) (CA INDEX NAME)

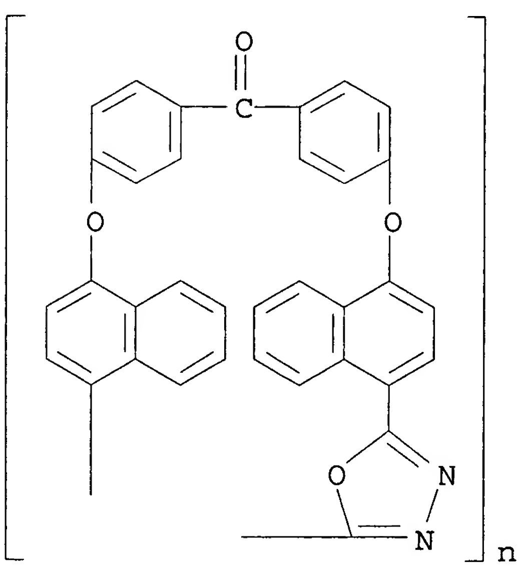


RN 292624-51-2 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(6-ethyl-1,4-naphthalenediyl)oxy-1,4-

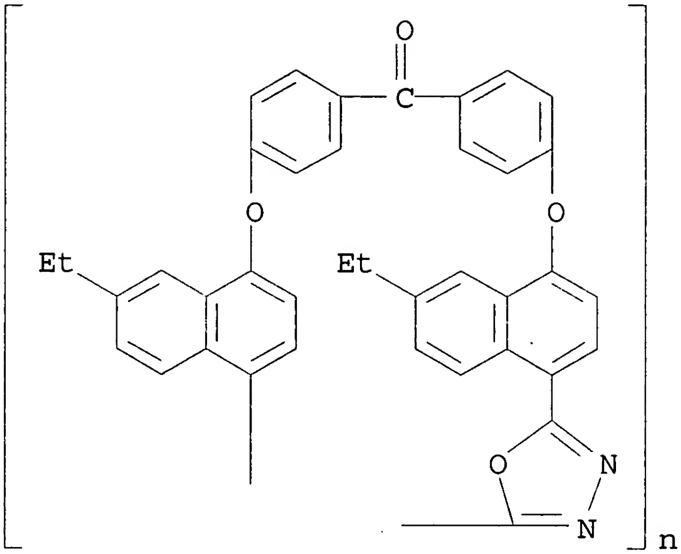
phenylenesulfonyl-1,4-phenyleneoxy(7-ethyl-1,4-naphthalenediyl)]
(9CI) (CA INDEX NAME)



RN 292624-52-3 HCA
CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-naphthalenediyloxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy-1,4-naphthalenediyl) (9CI) (CA INDEX NAME)



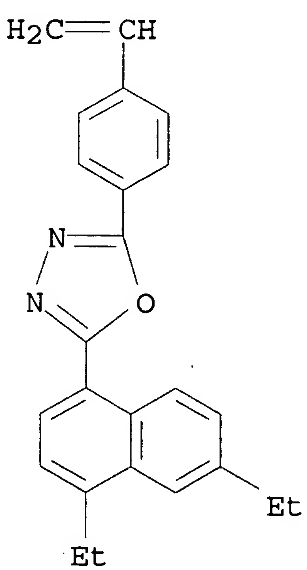
RN 292624-53-4 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl(6-ethyl-1,4-naphthalenediyl)oxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy(7-ethyl-1,4-naphthalenediyl)]
(9CI) (CA INDEX NAME)



RN 292624-55-6 HCA
CN 1,3,4-Oxadiazole, 2-(4,6-diethyl-1-naphthalenyl)-5-(4-ethenylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 292624-54-5
CMF C24 H22 N2 O

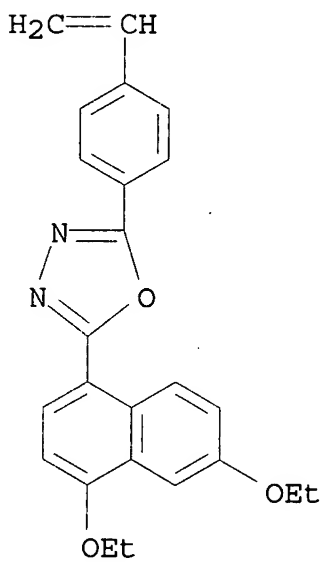


RN 292624-57-8 HCA
CN 1,3,4-Oxadiazole, 2-(4,6-diethoxy-1-naphthalenyl)-5-(4-

ethenylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

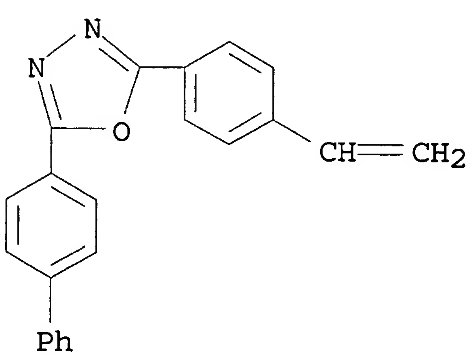
CRN 292624-56-7
CMF C24 H22 N2 O3



RN 292624-58-9 HCA
CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19430-49-0
CMF C22 H16 N2 O

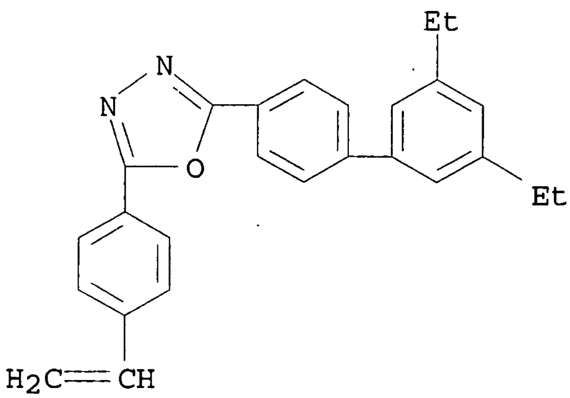


RN 292624-60-3 HCA
CN 1,3,4-Oxadiazole, 2-(3',5'-diethyl[1,1'-biphenyl]-4-yl)-5-(4-

ethenylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

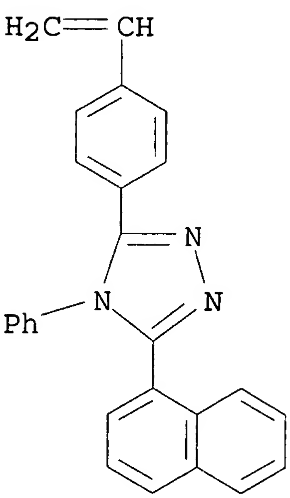
CRN 292624-59-0
CMF C26 H24 N2 O



RN 292624-63-6 HCA
CN 4H-1,2,4-Triazole, 3-(4-ethenylphenyl)-5-(1-naphthalenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 292624-62-5
CMF C26 H19 N3

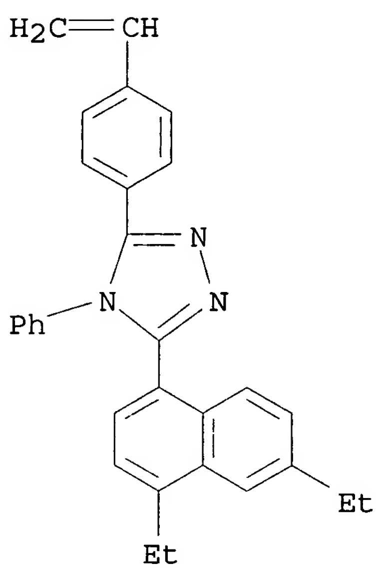


RN 292624-66-9 HCA
CN 4H-1,2,4-Triazole, 3-(4,6-diethyl-1-naphthalenyl)-5-(4-

ethenylphenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

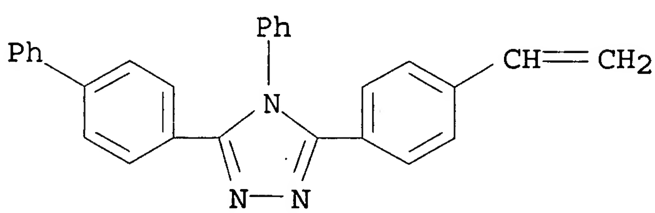
CRN 292624-65-8
CMF C30 H27 N3



RN 292624-69-2 HCA
CN 4H-1,2,4-Triazole, 3-[1,1'-biphenyl]-4-yl-5-(4-ethenylphenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

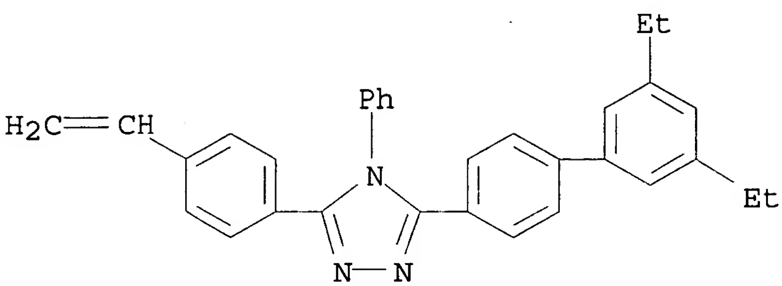
CRN 292624-68-1
CMF C28 H21 N3



RN 292624-72-7 HCA
CN 4H-1,2,4-Triazole, 3-(3',5'-diethyl[1,1'-biphenyl]-4-yl)-5-(4-ethenylphenyl)-4-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 292624-71-6
CMF C32 H29 N3



IC ICM H05B033-22
ICS H05B033-10; H05B033-14; C09K011-06
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST org **electroluminescent** polymer electron transport
IT Alkyl groups
Electroluminescent devices
Electron transport
Glass substrates
Hole transport
(org. **electroluminescent** devices and manuf.)
IT Polymers, uses
(org. **electroluminescent** devices and manuf.)
IT 50926-11-9, ITO **197089-42-2 292056-29-2**
292624-42-1 292624-43-2 292624-44-3
292624-45-4 292624-46-5 292624-47-6
292624-48-7 292624-49-8 292624-50-1
292624-51-2 292624-52-3 292624-53-4
292624-55-6 292624-57-8 292624-58-9
292624-60-3 292624-63-6 292624-66-9
292624-69-2 292624-72-7
(org. **electroluminescent** devices and manuf.)

L73 ANSWER 15 OF 22 HCA COPYRIGHT 2005 ACS on STN
133:24501 Polymeric **electroluminescent** material and device using it. Sakakibara, Mitsuhiko; Takeuchi, Yasumasa; Ding, Ding Guo (JSR Co., Ltd., Japan; Kokusaki Kiban Zairyo Kenkyusho K. K.; Dongyuan Electric Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2000159846 A2 20000613, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-337311 19981127.
AB The **electroluminescent** material is composed of (1) an alternately copolymd. unit (AB) of a hole-transporting monomer and an electron-transporting monomer and (2) a hole-transporting monomer-polymd. unit (A) to show the ratio of AB:A 50:50-5:95. The **electroluminescent** device comprises an **anode**

layer, the above **electroluminescent** material layer, an electron-transporting layer, and a **cathode** layer. The device shows high efficiency of emission and improved durability in repeated use.

IT **221327-82-8P**
(**electroluminescent** material and device using block copolymer of hole-transporting monomer and electron-transporting monomer)

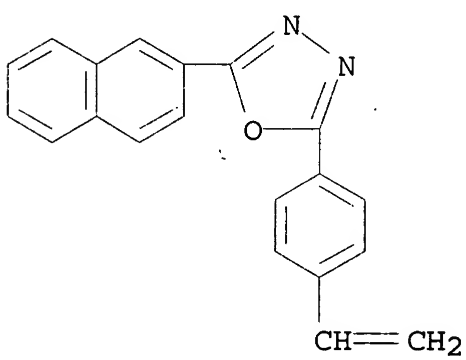
RN 221327-82-8 HCA

CN 9H-Carbazole, 9-ethenyl-, polymer with 2-(4-ethenylphenyl)-5-(2-naphthalenyl)-1,3,4-oxadiazole, block (9CI) (CA INDEX NAME)

CM 1

CRN 21464-06-2

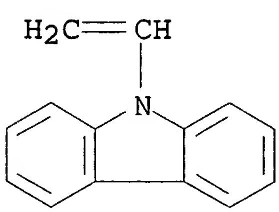
CMF C20 H14 N2 O



CM 2

CRN 1484-13-5

CMF C14 H11 N



IC ICM C08F297-00
ICS C08L025-18; C08L039-04; C08L053-00; H05B033-14; H05B033-22

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38

ST **electroluminescent** device hole electron transporting monomer copolymer; block copolymer **electroluminescent** vinyl carbazole naphthyl vinylphenyl oxadiazole

IT **Electroluminescent** devices
(**electroluminescent** material and device using block copolymer of hole-transporting monomer and electron-transporting monomer)

IT 25067-59-8P, N-Vinylcarbazole homopolymer **221327-82-8P**
(**electroluminescent** material and device using block copolymer of hole-transporting monomer and electron-transporting monomer)

L73 ANSWER 16 OF 22 HCA COPYRIGHT 2005 ACS on STN

132:243659 **Electroluminescence** of Multicomponent Conjugated Polymers. 1. Roles of Polymer/Polymer Interfaces in Emission Enhancement and Voltage-Tunable Multicolor Emission in Semiconducting Polymer/Polymer Heterojunctions. Zhang, Xuejun; Jenekhe, Samson A. (Department of Chemical Engineering and Center for Photoinduced Charge Transfer, University of Rochester, Rochester, NY, 14627-0166, USA). Macromolecules, 33(6), 2069-2082 (English) 2000. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

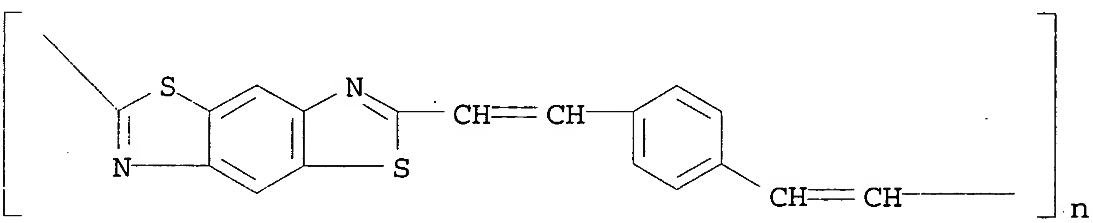
AB Effects of the electronic structure of polymer/polymer interfaces on the **electroluminescence** efficiency and tunable multicolor emission of polymer heterojunction **light-emitting** diodes were explored by 16 n-type conjugated polymers with varying electron affinities and ionization potentials in conjunction with poly(p-phenylenevinylene). Efficiency and luminance of diodes In-Sn oxide/poly(p-phenylenevinylene)/n-type polymer/Al were maximized and were .ltoreq.3% photons/electron and 820 cd/m2, resp., when the energetics at the polymer/polymer interface favored electron transfer while disfavoring hole transfer. Energetic barrier to electron transfer at the polymer/polymer interface was more important to **electroluminescence** efficiency and diode luminance than injection barrier at the **cathode**/polymer interface. By a judicious choice of the relative layer thicknesses and the components of the bilayer heterojunctions, the rate of both electron and hole transfer across the polymer/polymer interface can be regulated by the applied voltage, resulting in continuous voltage tunability of emission colors. The voltage tunable multicolor emission is exemplified by red (5 V) .tautm. yellow (9 V) .tautm. green (12 V) and other intermediate color switching in poly(p-phenylenevinylene)/poly(2,6-(4-phenyl)quinoline) (PPQ) diodes. The multicolors obtained from a single heterojunction diode by varying the applied voltage originated from the mixing of the component emission spectra in varying proportions facilitated by interfacial charge transfer and finite size effects. **Electroluminescence** microscopy was used to directly image

the multicolor diodes. Probably the electronic structure of polymer/polymer interfaces and finite size effects dominate the emission features and performance of **light-emitting** devices based on multicomponent polymers such as multilayered thin films, phase-sepd. blends, and block copolymers. The results also have implications for photovoltaic cells and other optoelectronic devices using conjugated polymers.

IT **149273-94-9**, Poly(1,4-phenylenebisvinylene benzobisthiazole)
(**electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

RN 149273-94-9 HCA

CN Poly(benzo[1,2-d:4,5-d']bisthiazole-2,6-diyl-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl) (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36, 66, 76

ST LED polymer bilayer interface electron hole transfer optical spectra; UV visible spectra polymer bilayer LED; luminescence decay polymer bilayer LED; HOMO polymer bilayer interface electron hole transfer LED; LUMO polymer bilayer interface electron hole transfer LED; band structure polymer bilayer interface electron hole transfer LED; current voltage LED polymer bilayer interface electron hole transfer; radiative recombination LED polymer bilayer interface electron hole transfer; size effect LED polymer bilayer interface electron hole transfer; **electroluminescent** device polymer bilayer interface electron hole transfer

IT Polymers, properties
(conjugated; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT **Anodes**
Band structure
Bilayer membranes
Cathodes
Electric current-potential relationship
Electroluminescent devices

Electron affinity
Electron-hole recombination
Electronic structure
Electrooptical effect
Fluorescence decay
HOMO (molecular orbital)
Ionization potential
LUMO (molecular orbital)
Luminescence
Luminescence, **electroluminescence**
Luminescence quenching
Radiative recombination
Semiconductor heterojunctions
Size effect
Solid-solid interface
UV and visible spectra
(**electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT Poly(arylenealkenylenes)
Polyquinolines
(**electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT Electron transfer
(interface; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT Electric apparatus
(optoelectronic; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT Photoelectric devices
(photovoltaic; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT Polybenzothiazoles
(polybenzobisthiazoles; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT 50926-11-9, ITO
(**anode**; **electroluminescence** of multicomponent

conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT 7429-90-5, Aluminum, uses
(**cathode**; **electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

IT 26009-24-5, Poly(p-phenylene vinylene) 59827-44-0 59827-46-2, Poly(2,6-(4-phenyl)quinoline) 75460-97-8 75460-98-9 94751-99-2 135614-64-1 137059-47-3 137091-72-6 137091-73-7 137091-74-8 137091-77-1 **149273-94-9**, Poly(1,4-phenylenebisvinylene benzobisthiazole) 162431-42-7 162431-44-9
(**electroluminescence** of multicomponent conjugated polymers. 1. roles of polymer/polymer interfaces in emission enhancement and voltage-tunable multicolor emission in semiconducting polymer/polymer heterojunctions)

L73 ANSWER 17 OF 22 HCA COPYRIGHT 2005 ACS on STN

131:322998 Sulfonation and Epoxidation of Substituted Polynorbornenes and Construction of **Light-Emitting** Devices.

Boyd, Thomas J.; Schrock, Richard R. (Department of Chemistry and Center for Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA).

Macromolecules, 32(20), 6608-6618 (English) 1999. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Efficient routes to sulfonation and epoxidn. of the double bonds in a polynorbornene backbone were found that do not interfere with side chain functional groups of interest for making **light-emitting** devices. Substituted norbornene monomers were prepd. with ether or thioether linkages, which were stable to sulfonation. Oligomers (25mers or 50mers) of homo- and copolymers contg. diphenylanthracene (for blue-**light emission**), oxadiazole (for electron transport), and p-triphenylene (for hole transport) side chains were prepd. via ring-opening metathesis polymn. (ROMP) of the corresponding norbornene monomers. Sulfonation of the polynorbornene backbone yielded a polyanionic material that was suitable for creating films via sequential adsorption with the polycation, poly(allylamine HCl) (PAH). Devices with an indium tin oxide (ITO) **anode** and an aluminum **cathode** were constructed. A two-layer device comprised of a layer of diphenylanthracene/oxadiazole copolymer and a layer of p-triphenylene homopolymer showed better performance in terms of efficiency and light output than a single layer of diphenylanthracene/oxadiazole. However, a single layer of polymer contg. 9-mesityl-10-phenylanthracene gave the best performance, up to 21 nW and 0.3 nW/mA efficiency.

IT **248584-24-9DP**, sulfonated **248584-26-1DP**,

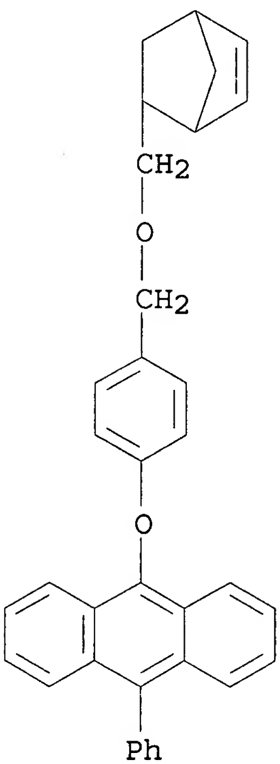
sulfonated
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

RN 248584-24-9 HCA

CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[4-[(bicyclo[2.2.1]hept-5-en-2-ylmethoxy)methyl]phenoxy]-10-phenylanthracene (9CI) (CA INDEX NAME)

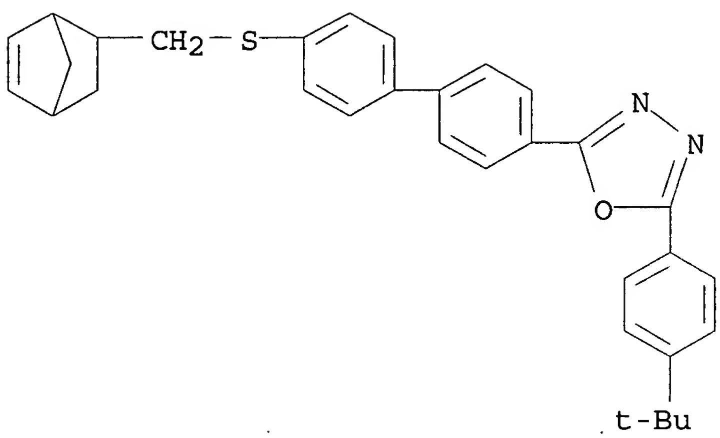
CM 1

CRN 248584-15-8
CMF C35 H30 O2



CM 2

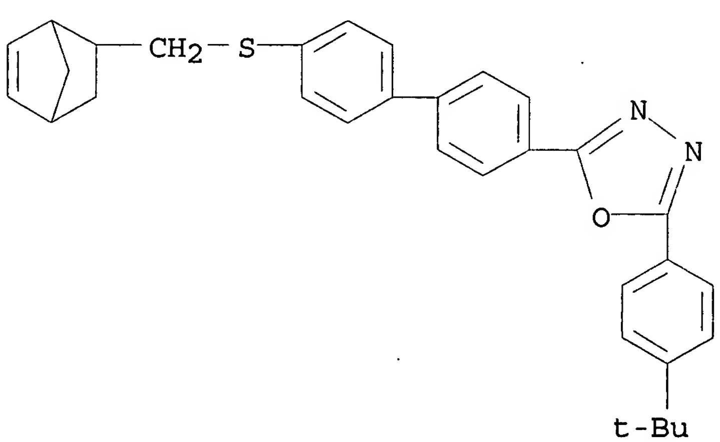
CRN 248584-11-4
CMF C32 H32 N2 O S



RN 248584-26-1 HCA
CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[4-[(bicyclo[2.2.1]hept-5-en-2-ylmethoxy)methyl]phenoxy]-10-(2,4,6-trimethylphenyl)anthracene (9CI) (CA INDEX NAME)

CM 1

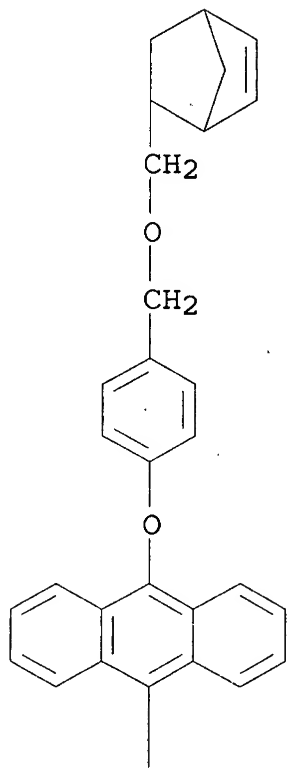
CRN 248584-11-4
CMF C32 H32 N2 O S



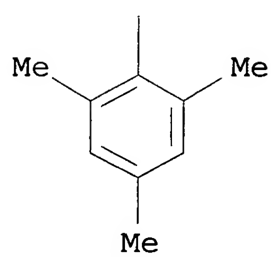
CM 2

CRN 248584-03-4
CMF C38 H36 O2

PAGE 1-A



PAGE 2-A



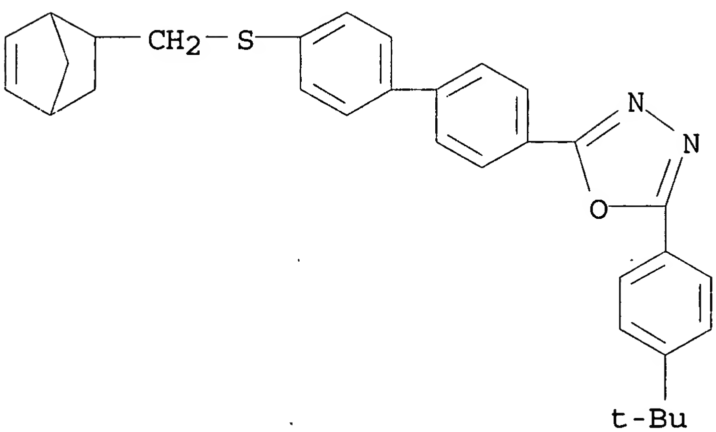
IT **248584-20-5DP**, sulfonated
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

RN 248584-20-5 HCA

CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 248584-11-4
CMF C32 H32 N2 O S



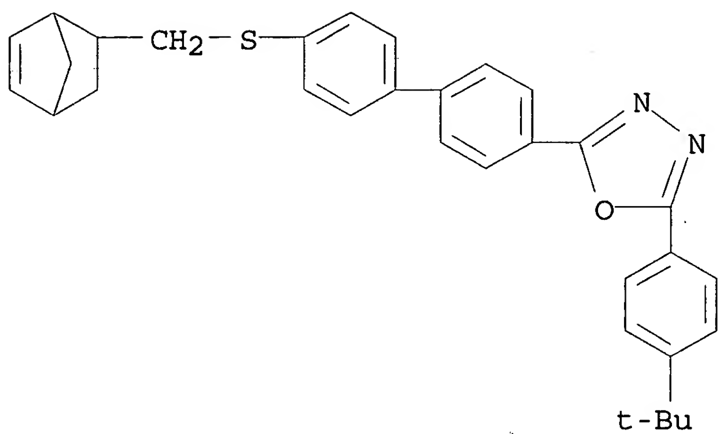
IT **248584-20-5P**, (5-Norbornenyl)methyl-(2-(Biphenyl)-5-(4-tert-butyl-phenyl)-1,3,4-oxadiazole)-4'-yl Thioether homopolymer **248584-24-9P** **248584-26-1P**
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

RN 248584-20-5 HCA

CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

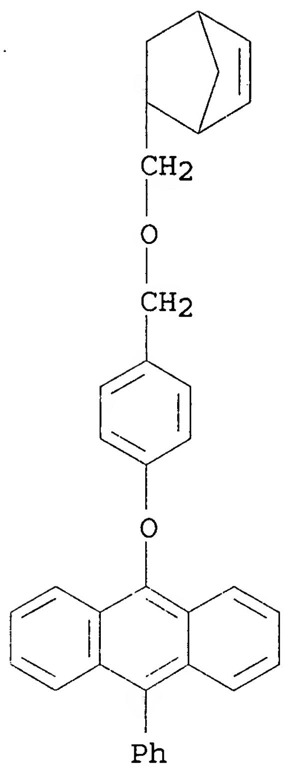
CRN 248584-11-4
CMF C32 H32 N2 O S



RN 248584-24-9 HCA
CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[4-[(bicyclo[2.2.1]hept-5-en-2-ylmethoxy)methyl]phenoxy]-10-phenylanthracene (9CI) (CA INDEX NAME)

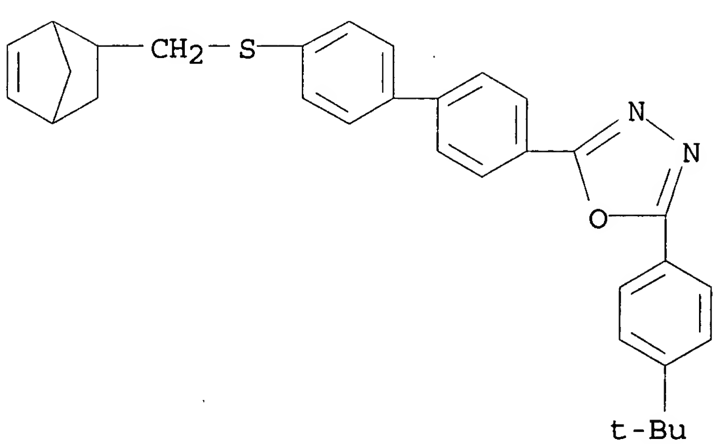
CM 1

CRN 248584-15-8
CMF C35 H30 O2



CM 2

CRN 248584-11-4
CMF C32 H32 N2 O S

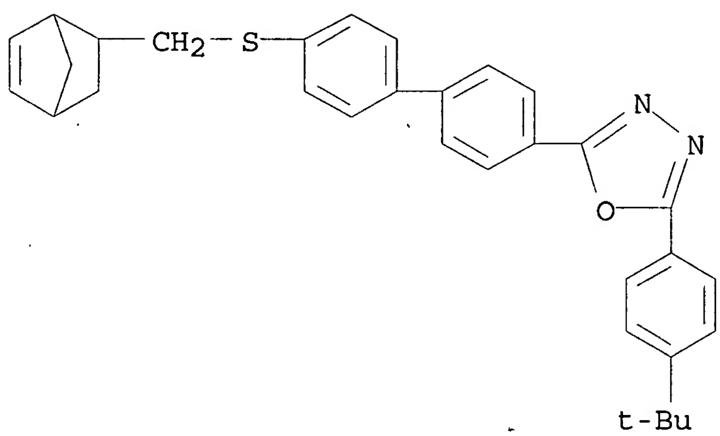


RN 248584-26-1 HCA
CN 1,3,4-Oxadiazole, 2-[4'-[(bicyclo[2.2.1]hept-5-en-2-

ylmethyl)thio][1,1'-biphenyl]-4-yl]-5-[4-(1,1-dimethylethyl)phenyl]-
, polymer with 9-[4-[(bicyclo[2.2.1]hept-5-en-2-
ylmethoxy)methyl]phenoxy]-10-(2,4,6-trimethylphenyl)anthracene (9CI)
(CA INDEX NAME)

CM 1

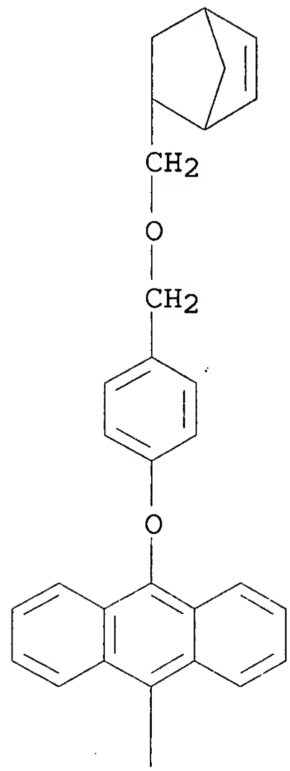
CRN 248584-11-4
CMF C32 H32 N2 O S



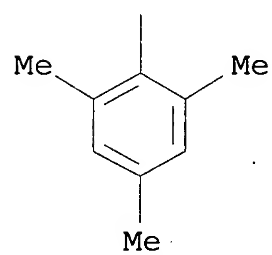
CM 2

CRN 248584-03-4
CMF C38 H36 O2

PAGE 1-A



PAGE 2-A



CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 74, 76

ST polynorbornene sulfonation epoxidn prepn emitter LED; norbornene substituted monomer thioether sulfonation stability; ring opening metathesis polymn substituted norbornene polyanion; **light emitting** diode sulfonated polynorbornene **electroluminescence** layer

IT Polymers, preparation

(conjugated, norbornene contg., sulfonated; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Polymerization
(metathetic, ring-opening; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Polyphenyls
(norbornene contg., sulfonated; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Electron transport
Epoxidation
Hole transport
Luminescence, **electroluminescence**
Molecular association
Sulfonation
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Adsorption
(sequential, layer-by-layer; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Polymer chains
(side; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT **Electroluminescent** devices
(single and dual layer; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT Ionomers
(sulfonated polynorbornenes; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT 126949-65-3
(ROMP catalyst; prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 50926-11-9, Indium tin oxide
(**anode**; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT 7429-90-5, Aluminum, uses
(**cathode**; prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT 248583-99-5P, 9-Bromo-10-mesitylanthracene 248584-01-2P, p-(Diethylborate)benzyl (5-Norbornenyl)methyl Ether 248584-08-9P

(intermediate; prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 248584-03-4P, p-(10-Mesitylanthracyl)benzyl (5-Norbornenyl)methyl Ether 248584-11-4P, (5-Norbornenyl)methyl-(2-(Biphenyl)-5-(4-tert-butyl-phenyl)-1,3,4-oxadiazole)-4'-yl Thioether 248584-13-6P, (p-Triphenyl)methyl (5-Norbornenylmethyl) Ether
(monomer; prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
(prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 92-66-0, 4-Bromobiphenyl 109-72-8, n-Butyllithium, reactions 1564-64-3, 9-Bromoanthracene 2633-66-1, Mesitylmagnesium bromide 7726-95-6, Bromine, reactions 7790-94-5, Chlorosulfuric acid 15082-28-7, tert-Butylphenyl-p-biphenyloxadiazole 50626-34-1, (5-Norbornenyl)methyl tosylate 190785-19-4, p-Bromobenzyl (5-norbornenyl)methyl ether
(prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 22668-99-1P, 9-Mesitylanthracene 248584-06-7P 248584-16-9P
(prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

IT 30551-89-4D, Poly(allylamine), hydrochloride derivs.
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

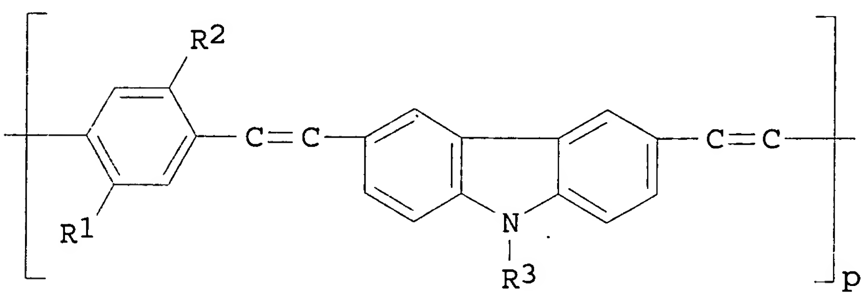
IT 25038-76-0DP, Poly(norbornene), sulfonated and epoxidized 248584-16-9DP, sulfonated 248584-18-1DP, sulfonated 248584-22-7DP, sulfonated **248584-24-9DP**, sulfonated **248584-26-1DP**, sulfonated
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT **248584-20-5DP**, sulfonated
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT 25038-76-0P, Poly(norbornene) 248584-18-1P, p-(10-Mesitylanthracyl)benzyl (5-Norbornenyl)methyl Ether homopolymer **248584-20-5P**, (5-Norbornenyl)methyl-(2-(Biphenyl)-5-(4-tert-butyl-phenyl)-1,3,4-oxadiazole)-4'-yl Thioether homopolymer 248584-22-7P, (p-Triphenyl)methyl (5-Norbornenylmethyl) Ether homopolymer **248584-24-9P** **248584-26-1P**
(prepn. of sulfonated substituted polynorbornenes and **electroluminescence** and use in LEDs)

IT 123-91-1, 1,4-Dioxane, reactions 603-35-0, Triphenylphosphine, reactions
(redn. reagent; prepn. of substituted norbornene monomers and ring-opening metathesis polymn. to obtain polynorbornenes for **light-emitting** devices)

L73 ANSWER 18 OF 22 HCA COPYRIGHT 2005 ACS on STN
130:353054 Organic **electroluminescent** polymer for **light-emitting** diode and devices therefrom. Jin, Sung-Ho; Kim, Woo-Hong; Son, Byung-Hee; Song, In-Sung; Han, Eun-Mi (Samsung Display Devices Co. Ltd., S. Korea; Samsung General Chemicals Co. Ltd.). Brit. UK Pat. Appl. GB 2328212 A1 19990217, 47 pp. (English). CODEN: BAXXDU. APPLICATION: GB 1998-17150 19980806. PRIORITY: KR 1997-38392 19970812; KR 1997-77055 19971229.
GI

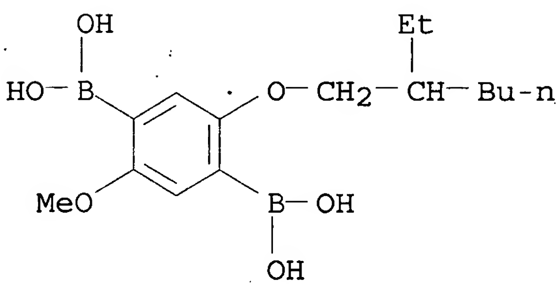

I

AB A **light-emitting** polymer for an **electroluminescent** display comprises a polymer having a dialkylphenylene moiety and a carbazole moiety I, where R1-R3 are independently C2-13 aliph. alkyl or C5-16 branched alkyl; p = 5-100; and/or a polymer having an oxadiazole moiety and a poly(p-phenylenevinylene) moiety, and optionally a conventional polymer and a lower-mol. fluorescent dye. The polymer is applied to a **light-emitting** layer of a **light-emitting** diode having a **cathode/light-emitting** layer/**anode** structure, a **cathode** /buffer layer/**light-emitting** layer/**anode** structure, or a **cathode**/hole-transporting layer/ **light-emitting** layer/electron-transporting layer/ **anode** structure. Thus, a 2,5-bis(p-bromophenyl)-1,3,4-oxadiazole-1-methoxy-4-(2-ethylhexyloxy)-2,5-phenylboronic acid copolymer (monomer prepns. given) was prepd., which was sol. in an org. solvent and showed excellent electron transport properties.
IT **224558-95-6P**
(prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

RN 224558-95-6 HCA
CN Boronic acid, [2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

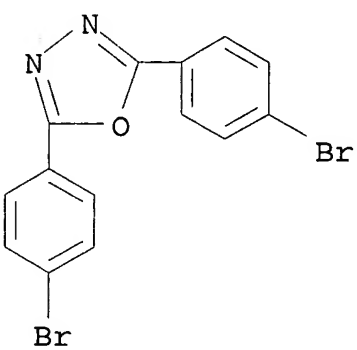
CM 1

CRN 224558-94-5
CMF C15 H26 B2 O6



CM 2

CRN 19542-05-3
CMF C14 H8 Br2 N2 O



IC ICM C08G061-12
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73
ST **electroluminescent** polymer prepn **light emitting** diode; carbazole dialkylphenylene polymer **light emitting** diode; oxadiazole phenylenevinylene polymer **light emitting** diode; bromophenyloxadiazole phenylboronic acid copolymer prepn **electroluminescent**
IT Polyoxadiazoles

(arom. ring-contg.; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT Liquid crystals, polymeric
(blends with **electroluminescent** polymers; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT Polycarbonates, uses
Polyimides, uses
(blends with **electroluminescent** polymers; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT **Electroluminescent** devices
(carbazole group-contg. polymers for; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT Poly(arylenealkenylenes)
Polymers, preparation
(carbazole group-contg.; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 79-10-7D, Acrylic acid, esters, polymers 9003-53-6 9011-14-7, Poly(methyl methacrylate) 25067-59-8, Poly(vinylcarbazole)
(blends with **electroluminescent** polymers; prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 224558-07-0P
(prepn. and Wittig polymn. with carbazole compds.; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 70207-46-4P
(prepn. and Wittig polymn. with dihexylbenzene salts; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 146370-51-6P
(prepn. and bromination of; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 224558-94-5P
(prepn. and polymn. with carbazole compds.; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 19542-05-3P, 2,5-Bis(p-bromophenyl)-1,3,4-oxadiazole
(prepn. and polymn. with phenylboronic acids; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 22588-73-4P, 1,4-Dihexylbenzene
(prepn. and reaction with chloromethyl Me ether; in prepn. of org. **electroluminescent** polymer for **light-**

emitting diode)

IT 69673-99-0P, 4,4'-Dibromodibenzoylhydrazine
(prepn. and reaction with thionyl chloride; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 224558-17-2P
(prepn. and reaction with tri-Me borate; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 56140-57-9P
(prepn. and reaction with triphenylphosphine; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 224558-12-7P **224558-95-6P**
(prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 86-28-2, N-Ethylcarbazole
(reaction with DMF; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 302-01-2, Hydrazine, reactions
(reaction with Me bromobenzoate; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 603-35-0, Triphenylphosphine, reactions
(reaction with bis(chloromethyl)dihexylbenzene; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 7719-09-7, Thionyl chloride
(reaction with dibromodibenzoylhydrazine; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 3761-92-0, Hexyl magnesium bromide
(reaction with dichlorobenzene; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 107-30-2, Chloromethyl methyl ether
(reaction with dihexylbenzene; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 150-76-5, 4-Methoxyphenol
(reaction with ethylbromohexane; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 68-12-2, DMF, reactions
(reaction with ethylcarbazole; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 106-46-7

(reaction with hexyl magnesium bromide; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 619-42-1, Methyl 4-bromobenzoate
(reaction with hydrazine; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 121-43-7, Trimethyl borate
(reaction with methoxy(ethylhexyloxy)bromobenzene; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

IT 18908-66-2
(reaction with methoxyphenol; in prepn. of org. **electroluminescent** polymer for **light-emitting** diode)

L73 ANSWER 19 OF 22 HCA COPYRIGHT 2005 ACS on STN

128:314492 Novel oxadiazole side chain conjugated polymers as single-layer **light-emitting** diodes with improved quantum efficiencies. Bao, Zhenan; Peng, Zhonghua; Galvin, Mary E.; Chandross, Edwin A. (Bell Laboratories, Lucent Technologies, Murray Hill, NJ, 07974, USA). Chemistry of Materials, 10(5), 1201-1204 (English) 1998. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB Single-layer polymer LEDs are ideal candidates for practical applications because of their easy processing conditions. However, low quantum efficiency of light generation is usually obsd. due to imbalances in both charge injection and transport of holes and electrons. We report new conjugated polymers with electron deficient oxadiazole side-chains, which exhibit an order of magnitude enhancement (2 .times. 10-2% vs. 2 .times. 10-3%) in **electroluminescence** efficiency, and better charge injection properties compared to the constituent conjugated backbone polymers. Better LED performance was obtained with polymers which possess higher concns. of oxadiazole side-chains.

IT **206433-43-4**
(electron transport layer; quantum efficiencies of oxadiazole side-chain conjugated polymer **light emitting** diodes using)

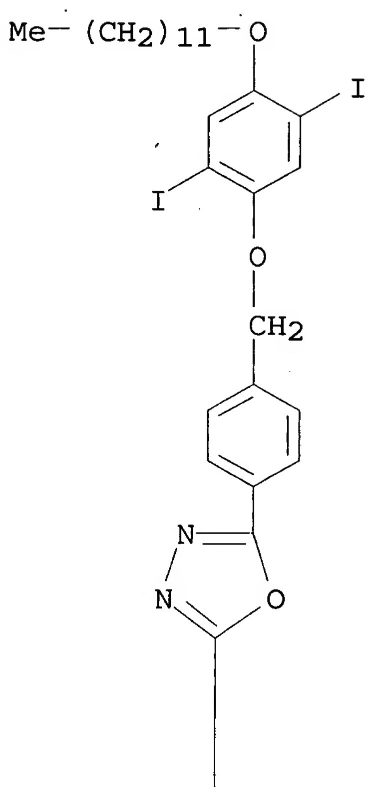
RN 206433-43-4 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[4-(dodecyloxy)-2,5-diiodophenoxy]methyl]phenyl]-5-(1-naphthalenyl)-, polymer with 2,5-thiophenediylbis[tributylstannane] (9CI) (CA INDEX NAME)

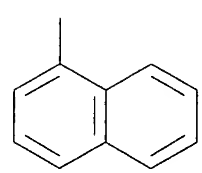
CM 1

CRN 206433-39-8
CMF C37 H40 I2 N2 O3

PAGE 1-A

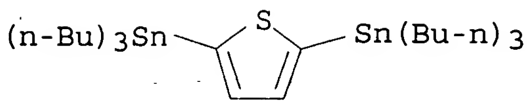


PAGE 2-A



CM 2

CRN 145483-63-2
CMF C28 H56 S Sn2



IT 206433-40-1P 206433-41-2P
(luminescence, **electroluminescence**, UV-visible spectra, and quantum efficiency of **light emitting** diodes)

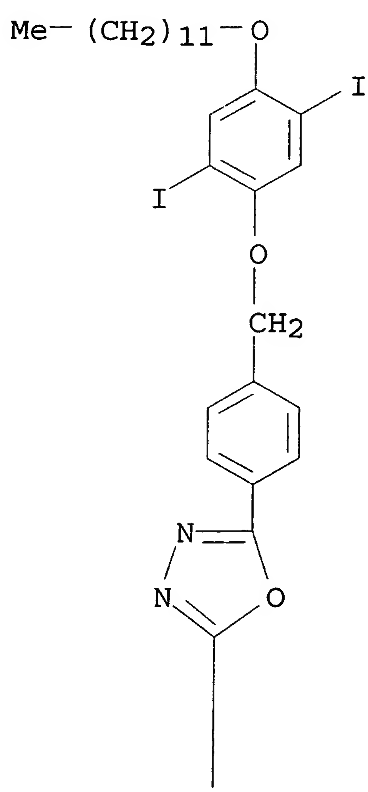
RN 206433-40-1 HCA

CN 1,3,4-Oxadiazole, 2-[4-[[4-(dodecyloxy)-2,5-diiodophenoxy]methyl]phenyl]-5-(1-naphthalenyl)-, polymer with 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

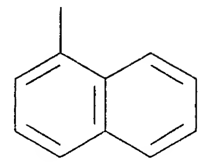
CM 1

CRN 206433-39-8
CMF C37 H40 I2 N2 O3

PAGE 1-A

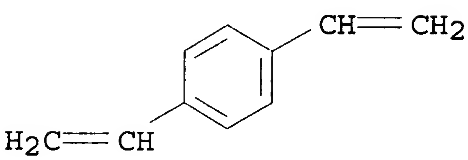


PAGE 2-A



CM 2

CRN 105-06-6
CMF C10 H10

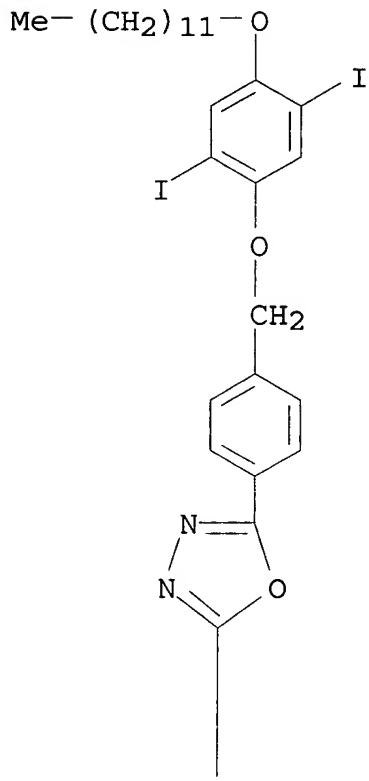


RN 206433-41-2 HCA
CN 1,3,4-Oxadiazole, 2-[4-[[4-(dodecyloxy)-2,5-diiodophenoxy]methyl]phenyl]-5-(1-naphthalenyl)-, polymer with 1,4-bis(dodecyloxy)-2,5-diiodobenzene and 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

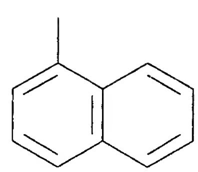
CM 1

CRN 206433-39-8
CMF C37 H40 I2 N2 O3

PAGE 1-A

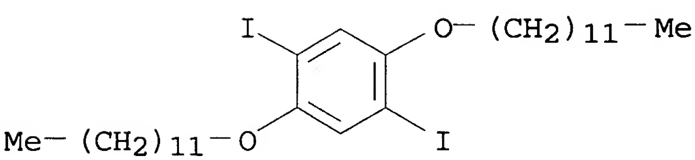


PAGE 2-A



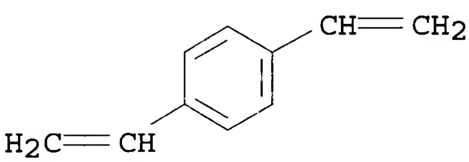
CM 2

CRN 145483-66-5
CMF C30 H52 I2 O2



CM 3

CRN 105-06-6
CMF C10 H10



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 76
ST oxadiazole side chain conjugated polymer LED; **light emitting** diode oxadiazole conjugated polymer; luminescence oxadiazole side chain polymer; phenylene vinylene polymer oxadiazole side chain; thiophene phenylene polymer oxadiazole side chain
IT Polymers, properties
(conjugated; oxadiazole side chain conjugated polymers for single-layer **light-emitting** diodes with improved quantum efficiencies)
IT Electric current-potential relationship
(light-current-voltage curves for oxadiazole side chain conjugated polymer **light-emitting** diodes)
IT Luminescence
Luminescence, **electroluminescence**
UV and visible spectra
(of oxadiazole side chain conjugated polymers)
IT **Electroluminescent** devices
(oxadiazole side chain conjugated polymers for single-layer **light-emitting** diodes with improved quantum efficiencies)
IT Poly(arylenealkenylenes)
(oxadiazole side chain conjugated polymers for single-layer **light-emitting** diodes with improved quantum efficiencies)
IT Polymer chains

(side; efficient conjugated polymer **light emitting** diodes using oxadiazole side-chains to improve charge transport)

IT Electric current carriers
(transport; oxadiazole side chain conjugated polymers for single-layer **light-emitting** diodes with improved quantum efficiencies)

IT 50926-11-9, ITO
(**anode**; quantum efficiencies of oxadiazole side-chain conjugated polymer **light emitting** diodes using)

IT 7440-70-2, Calcium, uses
(**cathode**; quantum efficiencies of oxadiazole side-chain conjugated polymer **light emitting** diodes using)

IT 852-38-0, PBD **206433-43-4**
(electron transport layer; quantum efficiencies of oxadiazole side-chain conjugated polymer **light emitting** diodes using)

IT **206433-40-1P 206433-41-2P** 206433-42-3P
(luminescence, **electroluminescence**, UV-visible spectra, and quantum efficiency of **light emitting** diodes)

IT 92583-93-2 146222-33-5
(quantum efficiencies of **electroluminescence** devices compared with oxadiazole side-chain conjugated polymers)

L73 ANSWER 20 OF 22 HCA COPYRIGHT 2005 ACS on STN
127:35249 **Electroluminescence** from New Polynorbornenes That Contain Blue-**Light-Emitting** and Charge-Transport Side Chains. Boyd, Thomas J.; Geerts, Yves; Lee, Jin-Kyu; Fogg, Deryn E.; Lavoie, Gino G.; Schrock, Richard R.; Rubner, Michael F. (Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA). Macromolecules, 30(12), 3553-3559 (English) 1997. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A blue-**light-emitting electroluminescent** polymer was prepd. by ring-opening metathesis polymn. (ROMP) of a norbornene monomer that contains a diphenylanthracene chromophore as a side chain (.lambda.max,em = 450 nm). Norbornene monomers also were synthesized that contain an oxadiazole (for electron transport) or a tertiary arylamine (for hole transport). Oligomers (25mers or 50mers) of homo- and copolymers (Mw/Mn = 1.02-1.08) were prepd. in toluene in 95-98% yield, employing Mo(N-2,6-C6H3-i-Pr2)(CHMe2Ph)(O-t-Bu)2 as the initiator. **Electroluminescent** devices made with a single layer of substituted polynorbornene, an ITO **anode**, and an Al **cathode** were prepd. first.
Two-layer devices were then constructed in which the substituted

polynorbornene was spin cast onto a 25-bilayer poly(phenylenevinylene) (PPV) heterostructure. The two-layer device performed best in terms of efficiency, light output, and threshold voltage.

IT **190785-27-4P 190785-29-6P 190785-30-9P**
(**electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

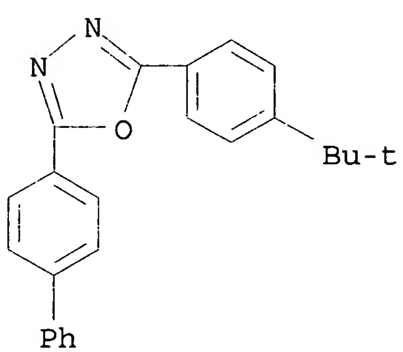
RN 190785-27-4 HCA

CN 1,3,4-Oxadiazole, 2-[1,1'-biphenyl]-4-yl-5-[4-(1,1-dimethylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 15082-28-7

CMF C24 H22 N2 O



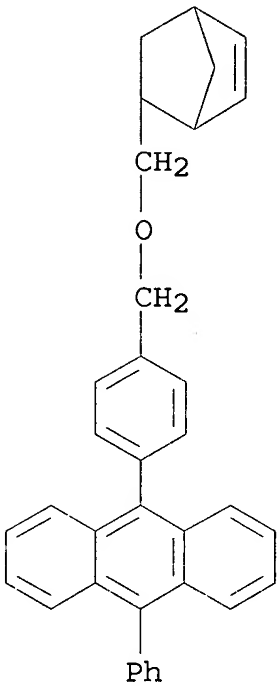
RN 190785-29-6 HCA

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-, bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, polymer with 9-[4-[(bicyclo[2.2.1]hept-5-en-2-ylmethoxy)methyl]phenyl]-10-phenylanthracene (9CI) (CA INDEX NAME)

CM 1

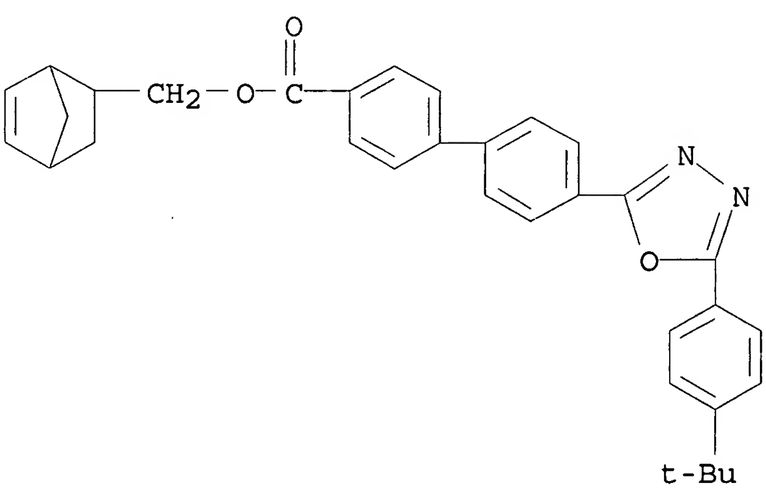
CRN 190785-28-5

CMF C35 H30 O



CM 2

CRN 190785-24-1
CMF C33 H32 N2 O3

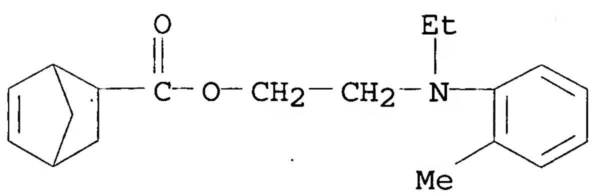


RN 190785-30-9 HCA
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[5-[4-(1,1-
dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-, bicyclo[2.2.1]hept-5-

en-2-ylmethyl ester, polymer with 2-[ethyl(2-methylphenyl)amino]ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

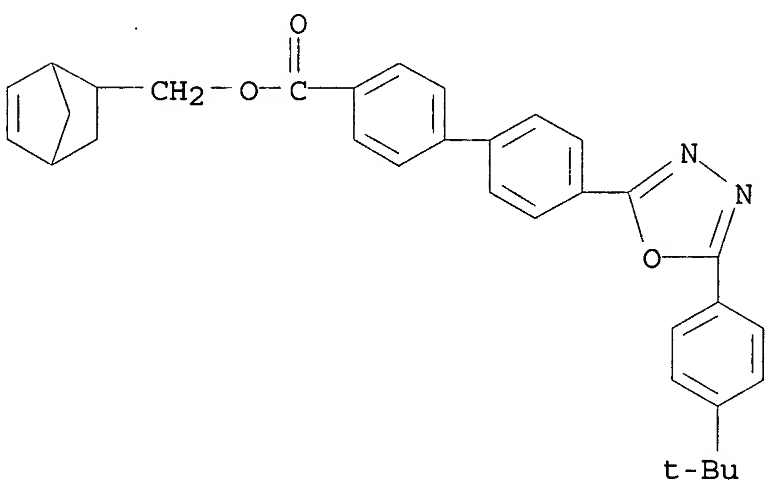
CM 1

CRN 190785-25-2
CMF C19 H25 N O2



CM 2

CRN 190785-24-1
CMF C33 H32 N2 O3



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 74, 76

ST **electroluminescent** device side chain polynorbornene; blue emitting side chain polynorbornene prepn; oxadiazole norbornene monomer electron transport; aniline norbornene monomer hole transport; diphenylanthracene norbornene monomer ring opening polymn

IT **Electroluminescent** devices
(blue-emitting; **electroluminescence** from new polynorbornenes that contain blue-**light**-

emitting and charge-transport side chains)

IT Luminescence, **electroluminescence**
(blue; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT Threshold potential
(of **electroluminescence** devices based on polynorbornenes contg. blue-**light-emitting** and charge-transport side chains)

IT Polymerization
(ring-opening, metathesis; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT **Electroluminescent** devices
(single- and two-layer; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT Poly(arylenealkenylenes)
(sublayer; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 50926-11-9, ITO
(**anode**; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 7429-90-5, Aluminum, uses
(**cathode**; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 25087-26-7, Poly(methacrylic acid) 25704-18-1, Poly(sodium styrene-4-sulfonate) 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl)
(**electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

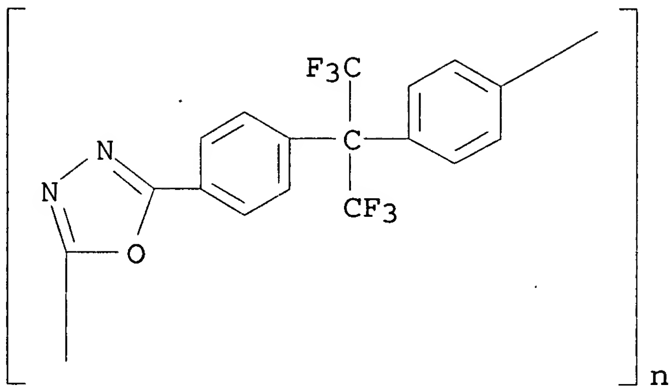
IT 190785-26-3P **190785-27-4P** **190785-29-6P** **190785-30-9P**
(**electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 602-55-1, 9-Phenylanthracene
(**electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 190785-23-0P
(**electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

IT 95-12-5, 5-Norbornene-2-methanol 589-15-1, 4-Bromobenzyl bromide
(monomer synthesis; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)
IT 124454-24-6P 190785-19-4P, (5-Norbornenyl)methyl p-bromobenzyl Ether 190785-20-7P 190785-22-9P
(monomer synthesis; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)
IT 23674-20-6P, 9-Bromo-10-phenylanthracene 190785-21-8P 190785-24-1P 190785-25-2P
(monomer; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)
IT 126949-65-3
(polymn. catalyst; **electroluminescence** from new polynorbornenes that contain blue-**light-emitting** and charge-transport side chains)

L73 ANSWER 21 OF 22 HCA COPYRIGHT 2005 ACS on STN
123:69646 Electron injection polymer for polymer **light-emitting** diodes. Yang, Y.; Pei, Q. (UNIAX Corporation, Santa Barbara, CA, 93117, USA). Journal of Applied Physics, 77(9), 4807-9 (English) 1995. CODEN: JAPIAU. ISSN: 0021-8979. Publisher: American Institute of Physics.
AB The authors report the use of an oxadiazole-contg. polymer, poly(phenylene-1,3,4-oxadiazole-phenylene-hexafluoroisopropylidene) (PPOPH), as the electron injection layer in polymer **light-emitting** diodes. By introducing a PPOPH layer between the **cathode** (Al) and the luminescent polymer (poly(2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene)), the device performance was significantly improved; the quantum efficiency increased by a factor of 40, close to that of the same device using Ca as the **cathode.** By using a porous polyaniline network electrode as the **anode**, the operating voltage was lowered by a factor of 2 with turn on at .apprx.5 .times. 105 V/cm.
IT **26916-42-7**, Poly(phenylene-1,3,4-oxadiazole-phenylene-hexafluoroisopropylidene)
(electron injector, PPOPH; electron injection polymer for polymer **light-emitting** diodes)
RN 26916-42-7 HCA
CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38

IT **Electroluminescent** devices
(electron injection polymer for polymer **light-emitting** diodes)

IT 7429-90-5, Aluminum, properties 7440-70-2, Calcium, properties
(**cathode**; electron injection polymer for polymer **light-emitting** diodes)

IT **26916-42-7**, Poly(phenylene-1,3,4-oxadiazole-phenylene-hexafluoroisopropylidene)
(electron injector, PPOPH; electron injection polymer for polymer **light-emitting** diodes)

IT 138184-36-8, Poly(2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene)
(luminescent; electron injection polymer for polymer **light-emitting** diodes)

IT 25233-30-1, Polyaniline
(porous **anode**; electron injection polymer for polymer **light-emitting** diodes)

L73 ANSWER 22 OF 22 HCA COPYRIGHT 2005 ACS on STN

117:242448 **Electroluminescent** element. Kawamura, Fumio; Oota, Masabumi; Ota, MasabumiOnuma, Teruyuki; Sakon, Hirota; Takahashi, Toshihiko (Riko K. K., Japan). Jpn. Kokai Tokkyo Koho JP 04085389 A2 19920318 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-198683 19900726.

AB The element (a carrier injection type) comprises: (1) a transparent **anode**, (2) a hole-transport layer consisting of a hole-transport org. compd. and a 1st basic polymer; (3) an electron-transport layer consisting of a electron-transport org. compd. and a 2nd basic polymer, and (4) a **cathode**, wherein the repeating unit of the 2nd polymer contains .gtoreq.1 selected from N-, S-, and/or metal-contg. compds. and arom. hydrocarbon. The

elements **emit** various color **lights** and are
suited for use in large-area displays.

IT **144483-12-5**
(hole-transport layer contg., **electroluminescent** elements from)

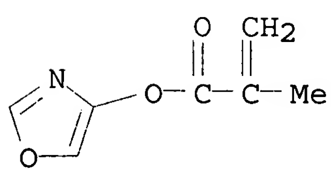
RN 144483-12-5 HCA

CN 2-Propenoic acid, 2-methyl-, 4-oxazolyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 144483-11-4

CMF C7 H7 N O3



IC ICM C09K011-06
ICS H05B033-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 21

ST **electroluminescence** org various color emitting; carrier injection org **electroluminescence** polymer medium

IT **Electroluminescent** devices
(carrier-injection type, org. carrier transporters and polymer media for)

IT Polycarbonates, uses
Polysulfones, uses
(electron-transport layer contg., **electroluminescent** elements from)

IT 2085-33-8 2639-18-1 32283-97-9 143991-74-6
(electron-transport compd., **electroluminescent** elements from)

IT 7398-57-4 9011-14-7, Poly(methyl methacrylate) 24980-54-9, 2-Vinyl pyridine-styrene copolymer 25014-15-7, Poly(2-vinyl pyridine) 25036-01-5, Polyacenaphthylene 25067-59-8, Poly(N-vinyl carbazole) 28406-56-6, Poly(2-vinyl naphthalene) 34801-99-5, Poly(vinyl ferrocene) 144483-10-3 144483-14-7 144483-16-9
(electron-transport layer contg., **electroluminescent** elements from)

IT 58473-78-2 89114-91-0 91175-19-8 91175-22-3 142677-07-4
(hole-transport compd., **electroluminescent** elements

from)

IT 25135-51-7
(hole-transport layer contg. **electroluminescent** elements from)

IT 25085-83-0, Poly(benzyl methacrylate) 25135-12-0, Poly(1-vinyl naphthalene) 26222-40-2, 4-Vinyl pyridine-styrene copolymer 31547-85-0, Poly(1-naphthyl methacrylate) 31550-06-8, Poly(oxysulfonyl-1,4-phenylene) **144483-12-5**
(hole-transport layer contg., **electroluminescent** elements from)

=>